

02-8901-19-PA
REV. NO. 0

**FINAL DRAFT
PRELIMINARY ASSESSMENT
BRINKMANN INSTRUMENTS, INC.
WESTBURY, NEW YORK**

**PREPARED UNDER
TECHNICAL DIRECTIVE DOCUMENT NO. 02-8901-19
CONTRACT NO. 68-01-7346**

**FOR THE
ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY**

APRIL 14, 1989

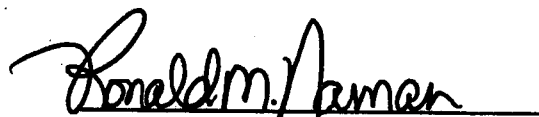
**NUS CORPORATION
SUPERFUND DIVISION**

SUBMITTED BY:


**RICHARD L. FEINBERG
PROJECT MANAGER**


**MICHAEL BAUMAN
SITE MANAGER**

REVIEWED/APPROVED BY:


**RONALD M. NAMAN
FACILITY OFFICE MANAGER**

299947



POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT**PART I: SITE INFORMATION**

1. Site Name/Alias Brinkmann Instruments Inc.
Street Cantiague Rock Road
City Westbury State NY Zip 11590
2. County Nassau County Code 059 Cong. Dist. 04
3. EPA ID No. NYD002054351
4. Latitude 40° 46' 35" N Longitude 73° 33' 12" W
USGS Quad. Hicksville, NY
5. Owner Brinkmann Instruments Inc. Tel. No. (516) 334-7500
Street Cantiague Rock Road
City Westbury State NY Zip 11590
6. Operator Brinkmann Instruments Inc. Tel. No. (516) 334-7500
Street Cantiague Rock Road
City Westbury State NY Zip 11590
7. Type of Ownership
☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other _____
8. Owner/Operator Notification on File
☒ RCRA 3001 Date 8/15/80 ☐ CERCLA 103c Date _____
☐ None ☐ Unknown
9. Permit Information
Permit None Permit No. _____ Date Issued _____ Expiration Date _____ Comments _____
10. Site Status
☒ Active ☐ Inactive ☐ Unknown
11. Years of Operation 1974 to Present
12. Identify the types of waste units (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.
- | Waste Unit No. | Waste Unit Type |
|----------------|--------------------|
| <u>1</u> | <u>Septic Tank</u> |
13. Information available from
Contact Amy Brochu Agency U.S. EPA Tel. No. (201) 906-6802
Preparer Michael Bauman Agency NUS Corporation Date 4/14/89

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following seven items.

Waste Unit No. 1 - Septic Tank

1. Identify the RCRA permit status, if applicable, and the age of the waste unit.

Neither the septic tank nor any other part of the facility has a RCRA permit. In August of 1980, Brinkmann filed a Notification of Hazardous Waste Activity form at the U.S. Environmental Protection Agency (EPA). In November of 1980, Brinkmann filed an application for a RCRA permit. In August of 1981, Brinkmann withdrew its application for a RCRA permit because it no longer handled hazardous substances on site. The Brinkmann facility became active in 1974; however, information to establish whether hazardous substances have been handled continuously from 1974 to 1981 was not available.

2. Describe the location of the waste unit and identify clearly on the site map.

The waste unit is an underground septic tank located outside the Brinkmann building, within the property boundary. A drain line connects the septic tank to a sink in the laboratory. The exact location of the septic tank is not known; however, a map in Ref. No. 3, which has no north arrow, depicts the septic tank.

3. Identify the size or quantity of the waste unit (e.g., area or volume of a landfill or surface impoundment, number and capacity of drums or tanks). Specify the quantity of hazardous substances in the waste unit.

The design capacity of the septic tank is 1000 gallons. The exact quantity of hazardous substances in the waste unit is unknown. However, the RCRA Hazardous Waste Application indicates that approximately 70 gallons of solvents were handled on site per year. It is not known how much of these solvents reached the septic tank.

4. Identify the physical state(s) of the waste type(s) as disposed of in the waste unit. The physical state(s) should be categorized as follows: solid, powder or fines, sludge, slurry, liquid, or gas.

The physical state of the solvents handled on site is liquid. When these solvents were discharged to the septic tank, they were diluted with water.

5. Identify specific hazardous substance(s) known or suspected to be present in the waste unit.

Acetone, chloroform, 1,2-dichloroethane, ethyl acetate, methanol, and dichloromethane were known to be handled on site and potentially disposed of into the septic tank.

6. Describe the containment of the waste unit as it relates to contaminant migration via groundwater, surface water, and air.

The hazardous substances reaching the septic tank are assumed to have been released to groundwater. A release to surface water or air is unlikely because the septic tank is underground.

7. Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their locations on site.

No miscellaneous spills or incidents of dumping were noted in available background information.

Ref. Nos. 1, 2, 3, 4, 5, 18

PART III: HAZARD ASSESSMENT**GROUNDWATER ROUTE**

1. **Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed, alleged, potential, or none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminant(s) to the facility.**

Until 1981, solvents from this facility were disposed of in laboratory sinks and flushed into drains leading to a septic tank. It is likely that a release to groundwater occurred when the septic tank was used in this manner. The potential contaminants are acetone, chloroform, 1,2-dichloroethane, ethyl acetate, methanol, and dichloromethane as listed in the U.S. EPA Notification of Hazardous Waste Activity. These compounds were all used in the process of manufacturing the medical test kits this company produced.

Ref. Nos. 2, 3, 4, 5

2. **Describe the aquifer of concern; include information such as depth, thickness, geologic composition, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.**

Directly beneath the site, the Magothy aquifer is the aquifer of concern, and its surface lies at an elevation of approximately 0 feet mean sea level (MSL). This clay, silt, sandy clay, and fine to medium sand formation is approximately 435 feet thick. A large quantity of clay in the upper portion of the Magothy causes water to become confined and may even cause the formation to display artesian conditions with depth. The Magothy displays moderate to high permeability. Wells screened in the lower part of the aquifer can produce as much as 1,400 gal/min. The Magothy displays a high degree of hydraulic continuity with the overlying upper glacial aquifer but can vary from location to location throughout Long Island. The upper glacial aquifer, which lies from the surface down to a depth of approximately 158 feet, consists of glacial till which is unsorted clay, sand, gravel, and boulders. It may also contain outwash deposits of stratified brown sand and gravel, and lacustrine or marine deposits consisting of clay, silt, and sand which can be fossiliferous. The glacial till may cause localized, perched water conditions and retard downward percolation of precipitation. However, the outwash deposits are highly permeable. In general, this formation contains the water table for Long Island and recharges all underlying aquifers. Beneath the site, the water table is at a depth of approximately 68 feet or 90 feet above MSL. Groundwater is moving in a southward direction.

Ref. No. 6

3. **Is a designated sole source aquifer within 3 miles of the site?**

Three sole source aquifers, the upper glacial aquifer, the Magothy aquifer, and the Lloyd aquifer, underlie the site.

Ref. No. 7

4. **What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?**

The lowest point of waste disposal is assumed to be 6 feet, because the septic tank is underground but information to determine its lowest point is not available. The water table in the upper glacial aquifer, which is hydraulically connected to the Magothy aquifer, is at approximately 90 feet above MSL, and the facility elevation is approximately 160 feet MSL. Therefore, the depth from the lowest point of waste disposal to the aquifer of concern is approximately 60 feet.

Ref. Nos. 3, 6, 8

5. What is the permeability value of the least permeable intervening strata between the ground surface and the aquifer of concern?

The least permeable zone between the surface and the upper glacial aquifer is estimated to be greater than 10^{-3} cm/sec.

Ref. Nos. 6, 9

6. What is the net precipitation for the area?

The net precipitation in the vicinity of the site is approximately 15 inches.

Ref. No. 9

7. Identify uses of groundwater within 3 miles of the site (i.e., private drinking source, municipal source, commercial, industrial, irrigation, unusable).

Five water districts have municipal supply wells located within 3 miles of the site.

Ref. Nos. 10, 11, 12, 13, 14

8. What is the distance to and depth of the nearest well that is currently used for drinking or irrigation purposes?

Distance Approximately 600 feet east

Depth 535 feet

Ref. No. 13

9. Identify the population served by the aquifer of concern within a 3-mile radius of the site.

Five water districts have 43 municipal supply wells located within 3 miles of the site that draw from the Magothy aquifer. These water districts serve approximately 160,000 people.

Ref. Nos. 10, 11, 12, 13, 14, 15

SURFACE WATER ROUTE

10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed, alleged, potential, or none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminants to the facility.

There is no potential for a release to surface water because the contaminants are underground. Further, a surface water migration pathway does not exist. Storm water runoff drains from the site via storm drains, and enters a recharge basin where it infiltrates the ground. Because there is no surface water migration route, the surface water route will not be considered.

Ref. Nos. 1, 8, 16

11. What is the facility slope in percent? (Facility slope is measured from the highest point of deposited hazardous waste to the most downhill point of the waste area or to where contamination is detected.)

Not Applicable

12. What is the slope of the intervening terrain in percent? (Intervening terrain slope is measured from the most downhill point of the waste area to the probable point of entry to surface water).
Not Applicable
13. What is the 1-year 24-hour rainfall?
Not Applicable
14. What is the distance to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.
Not Applicable
15. Identify uses of surface waters within 3 miles downstream of the site (i.e., drinking, irrigation, recreation, commercial, industrial, not used).
Not Applicable
16. Describe any wetlands, greater than 5 acres in area, within 2 miles downstream of the site. Include whether it is a freshwater or coastal wetland.
Not Applicable
17. Describe any critical habitats of federally-listed endangered species within 2 miles of the site along the migration path.
Not Applicable
18. What is the distance to the nearest sensitive environment along or contiguous to the migration path (if any exist within 2 miles)?
Not Applicable
19. Identify the population served or acres of food crops irrigated by surface water intakes within 3 miles downstream of the site and the distance to the intake(s).
Not Applicable
20. What is the state water quality classification of the water body of concern?
Not Applicable
21. Describe any apparent biota contamination that is attributable to the site.
Not Applicable

AIR ROUTE

22. Describe the likelihood of a release of contaminant(s) to the air as follows: observed, alleged, potential, none. Identify the contaminant(s) detected or suspected, and provide a rationale for attributing the contaminant(s) to the facility.

There is no potential for a release to the air because the solvents were disposed of in an underground septic tank and the use of these solvents was discontinued in 1981.

Ref. Nos. 3, 4, 5

23. What is the population within a 4-mile radius of the site?

The population within 4 miles of the site is approximately 180,800.

Ref. No. 17

FIRE AND EXPLOSION

24. Describe the potential for a fire or explosion to occur with respect to the hazardous substance(s) known or suspected to be present on site. Identify the hazardous substance(s) and the method of storage or containment associated with each.

No fire or explosive condition due to the hazardous substances is likely to exist at the site because the quantities of solvents used on site were small, and because the solvents were diluted with water and drained into a septic tank. These substances have not been used on site since 1981.

Ref. Nos. 1, 3, 17

25. What is the population within a 2-mile radius of the hazardous substance(s) at the facility?

The population within 2 miles of the site is approximately 43,200.

Ref. No. 17

DIRECT CONTACT/ON-SITE EXPOSURE

26. Describe the potential for direct contact with hazardous substance(s) stored in any of the waste units on site or deposited in on-site soils. Identify the hazardous substance(s) and the accessibility of the waste unit.

Direct contact is unlikely to occur because the hazardous substances were disposed of in an underground septic tank and hazardous substances have not been used on site since 1981.

Ref. Nos. 3, 4, 5

27. How many residents live on a property whose boundaries encompass any part of an area contaminated by the site?

There is no area with documented evidence of contamination other than the septic tank. The septic tank is totally contained on the Brinkmann property.

Ref. No. 3

28. What is the population within a 1-mile radius of the site?

The population within 1 mile of the site is approximately 12,600.

Ref. No. 3

PART IV: SITE SUMMARY AND RECOMMENDATIONS

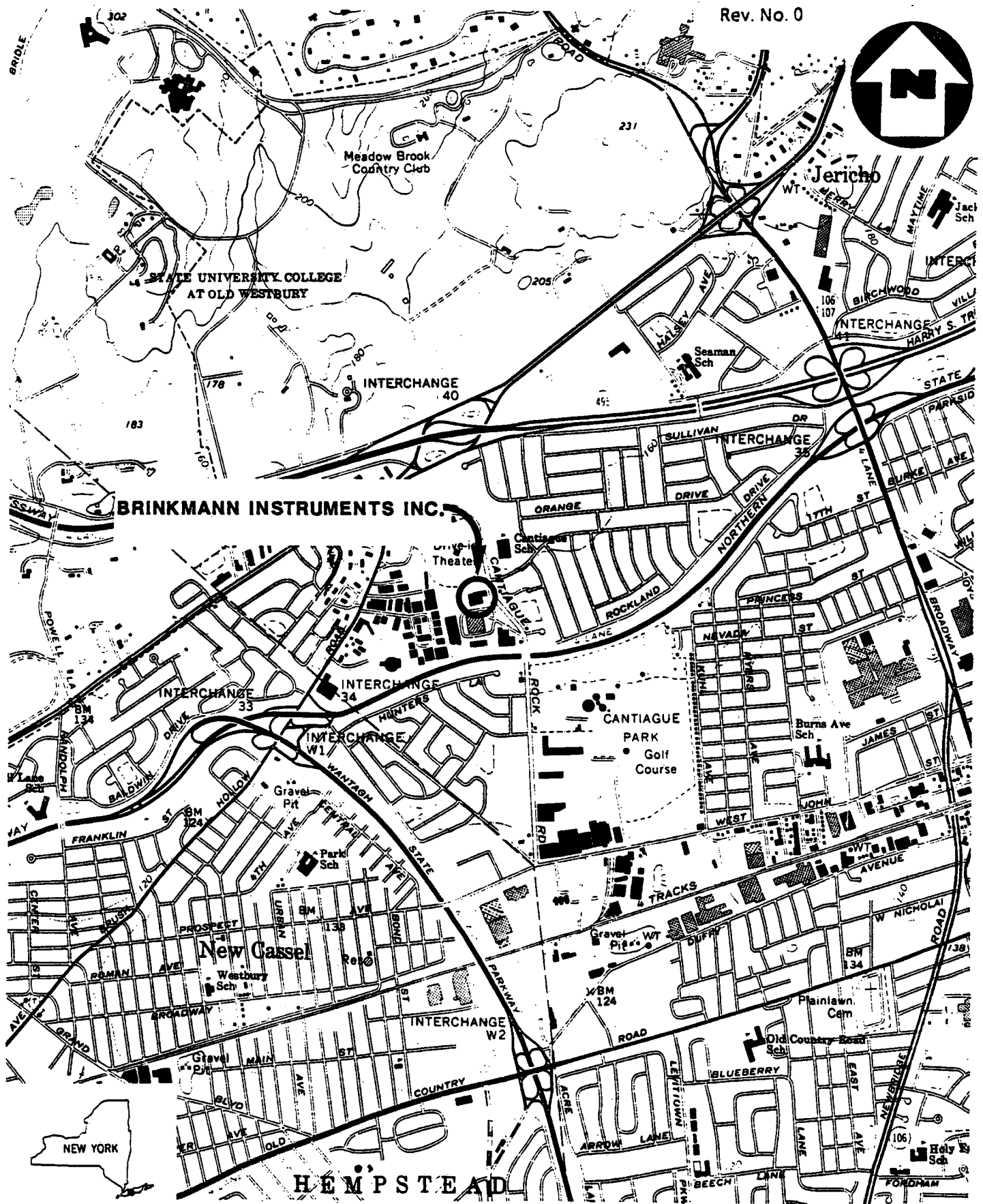
The Brinkmann Instruments Site is located on Cantiague Rock Road in Westbury, NY. Westbury is located on Long Island in a heavily populated section of Nassau County. Brinkmann, a subsidiary of Sybron Corporation, has operated the 10-acre facility on Cantiague Rock Road since 1974 where it imports and distributes scientific instruments.

Prior to 1982 Brinkmann operated a laboratory in the single building on site where waste solvents were produced. An annual amount of approximately 70 gallons of solvents was used in the production of clinical test kits. A preliminary assessment was conducted on this site to assess the potential impact of these solvents. Groundwater is the only potentially affected medium. Solvents in the laboratory migrate to groundwater from the laboratory sink into the septic tank. Storm water runoff in this area is directed to recharge basins and therefore never enters any surface water bodies. There is a recharge basin across the street from a neighboring property. There is no longer a potential for a release to air because use of the solvents was ceased in 1981.

A recommendation is made for **NO FURTHER REMEDIAL ACTION PLANNED (NFRAP)** at this site. There is no potential for a release to air or to surface water. There is a potential that a limited release to groundwater may have occurred prior to 1982. However, further testing of groundwater is not recommended at this time for the following reasons:

- The total amount of solvents known to have been on site is minimal, and only a portion of this minimal quantity is expected to have been released.
- The last known time a potential release may have occurred was 8 years ago, and the information for identifying groundwater flow dynamics with sufficient accuracy to determine the present-day location of these potential releases is not available.
- There are no known wells in the area that are at a depth where contaminants may potentially be found.

ATTACHMENT 1



(QUAD) HICKSVILLE, N.Y.

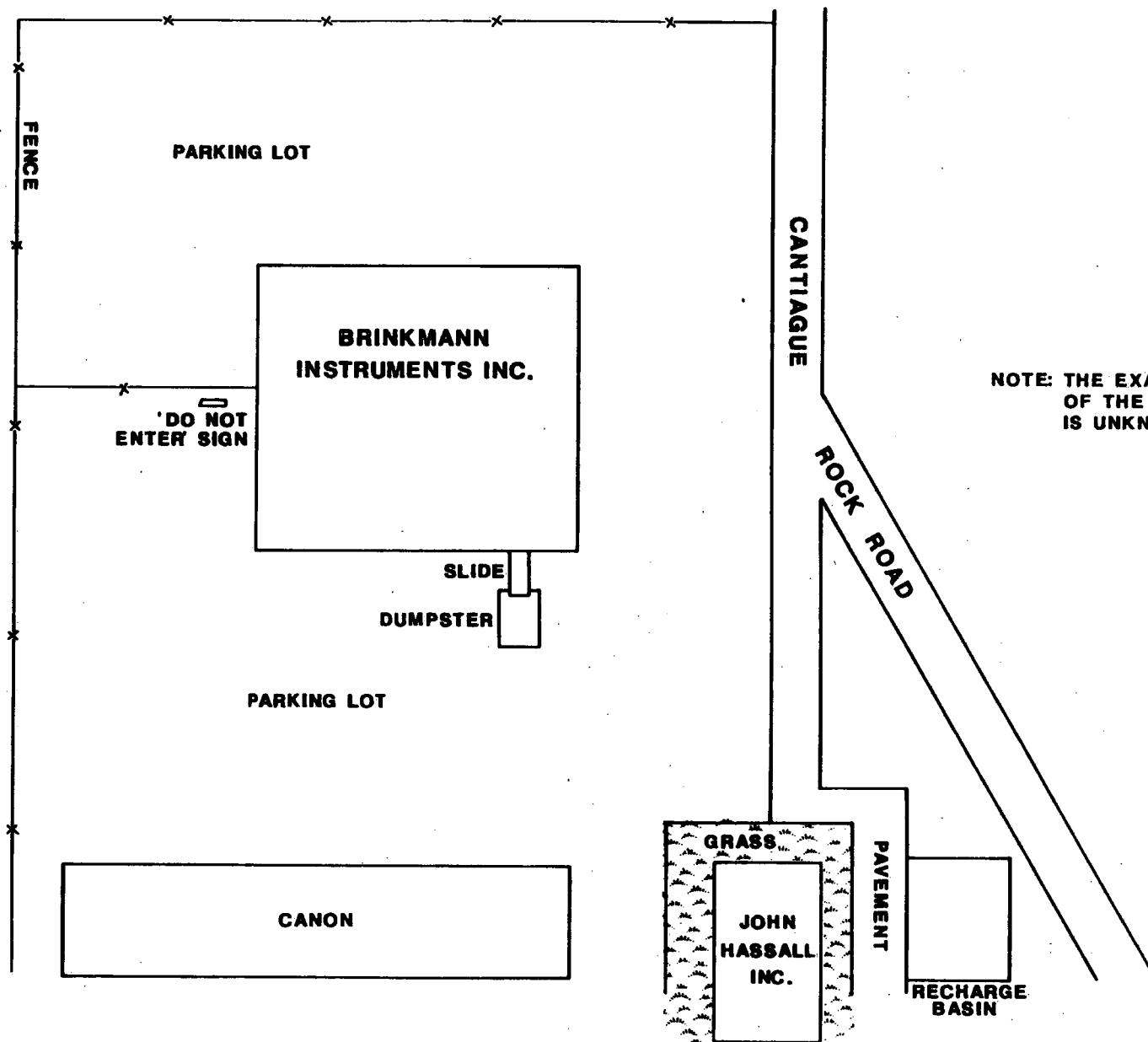
SITE LOCATION MAP

BRINKMANN INSTRUMENTS INC., WESTBURY, N.Y.

SCALE: 1"= 2000'

FIGURE 1





SITE MAP
BRINKMANN INSTRUMENTS INC., WESTBURY, N.Y.
 (NOT TO SCALE)

FIGURE 2



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 Rev. No. 0

EXHIBIT A

PHOTOGRAPH LOG

BRINKMANN INSTRUMENTS INC.
WESTBURY, NEW YORK

BRINKMANN INSTRUMENTS INC.
WESTBURY, NEW YORK
JANUARY 11, 1989

PHOTOGRAPH INDEX

ALL PHOTOGRAPHS TAKEN BY PETER VON SCHONDORF

<u>Photo Number</u>	<u>Description</u>	<u>Time</u>
1P-17	Corner of site from the west showing the fence.	1230
1P-18	Near the corner of the building from the west.	1232
1P-19	Side of building from the south.	1235
1P-20	Building sign from east of site.	1236



1P-17

January 11, 1989 1230
Corner of site from the west showing the fence.



1P-18

January 11, 1989 1232
Near the corner of the building from the west.



1P-19

January 11, 1989
Side of building from the south.

1235



1P-20

January 11, 1989
Building sign from east of site.

1236

ATTACHMENT 2

REFERENCES

1. Preliminary Assessment Off-Site Reconnaissance Information Reporting Form, Brinkmann Instruments, Inc., TDD No. 02-8901-19, NUS Corp. Region 2 FIT, Edison, NJ, January 10, 1989.
2. Notification of Hazardous Waste Activity, U.S. EPA Form No. 0246-EPA-OT, completed by Richard D. Gordon, Brinkmann Instruments, August 15, 1980.
3. General Information (Form 1) and Hazardous Waste Permit Application (Form 3), U.S. EPA Form No. 158-R0175, completed by Reiner H. Kopp, November 19, 1980.
4. Letter from J.D. Brown, Brinkmann Instruments, to Permit Contact, Permits Adm. Branch, U.S. EPA, August 17, 1981.
5. Letter from J.D. Brown, Brinkmann Instruments, to Clinical Customer, June 19, 1981.
6. Kilburn, Chabot and Richard K. Krulik, Hydrogeology and Groundwater Quality of the Northern Part of the Town of Oyster Bay, Nassau County, New York. In 1980, U.S. Geological Survey, Water Resources Investigations Report 85-4051, 1987.
7. Federal Register, Vol. 43, No. 120-Wednesday, June 21, 1978, pages 2611 and 26612.
8. Three-Mile Vicinity Map, based on U.S. Department of the Interior, Geological Survey Topographic Maps, 7.5 minute series, "Hicksville, N.Y.", 1967, photorevised 1979, and "Freeport, N.Y.", 1969, photorevised 1979.
9. Uncontrolled hazardous waste site ranking system, A user's manual, 40 CFR, Part 300, Appendix A, 1986.
10. Letter from John J. McCrosson, Hicksville Water District, to E.L. Leonard, NUS Corp., March 22, 1988.
11. Letter from Arthur J. Lindon, Village of Westbury Public Works, to Edward L. Leonard, NUS Corp., April 4, 1988.
12. Letter from Italo J. Vacchio, Westbury Water District, to E. Leonard, NUS Corp., March 21, 1988.
13. Letter from William Evers, Jericho Water District, to Edward Leonard, NUS Corp., May 9, 1988.
14. Letter from Howard V. Morgan, Town of Hempstead Department of Water, to Edward L. Leonard, NUS Corp., April 6, 1988.
15. New York State Atlas of Community Water System Sources, New York State Department of Health, Division of Environmental Protection, Bureau of Public Water Supply Protection, 1982.
16. Seaburn, G.E. and D.A. Aronson, Catalog of Recharge Basins on Long Island, New York, in 1969, U.S. Geological Survey Bulletin 70, 1973.
17. General Sciences Corporation, Graphical Exposure Modeling Systems (GEMS). Landover, Maryland, 1986.
18. Code of Federal Regulations, revised as of July 1, 1988, Volume 40, Part 261.33.

REFERENCE NO. 1

PRELIMINARY ASSESSMENT
OFF SITE RECONNAISSANCE
INFORMATION REPORTING FORM

Date: 1/10/89

Site Name: Brinkmann Instruments Inc. TDD: 02-8901-19

Site Address: Cantiague Rock Road
Street, Box, etc.

Westbury
Town

Nassau
County

N.Y.
State

NUS Personnel:	Name	Discipline
	<u>Pete von Schondorf</u>	<u>Geologist</u>
	<u>G. Hannay</u>	<u>Biologist</u>
	<u>B. Dietz</u>	<u>Environmental Scientist</u>

Weather Conditions (clear, cloudy, rain, snow, etc.):

35° Sunny, Clear

Estimated wind direction and wind speed: from Northwest

Estimated temperature: 35°C

Signature: Harold J. Hannay Date: 1/11/89

Countersigned: Brian Dietz Date: 1/11/89

PRELIMINARY ASSESSMENT
INFORMATION REPORTING FORM

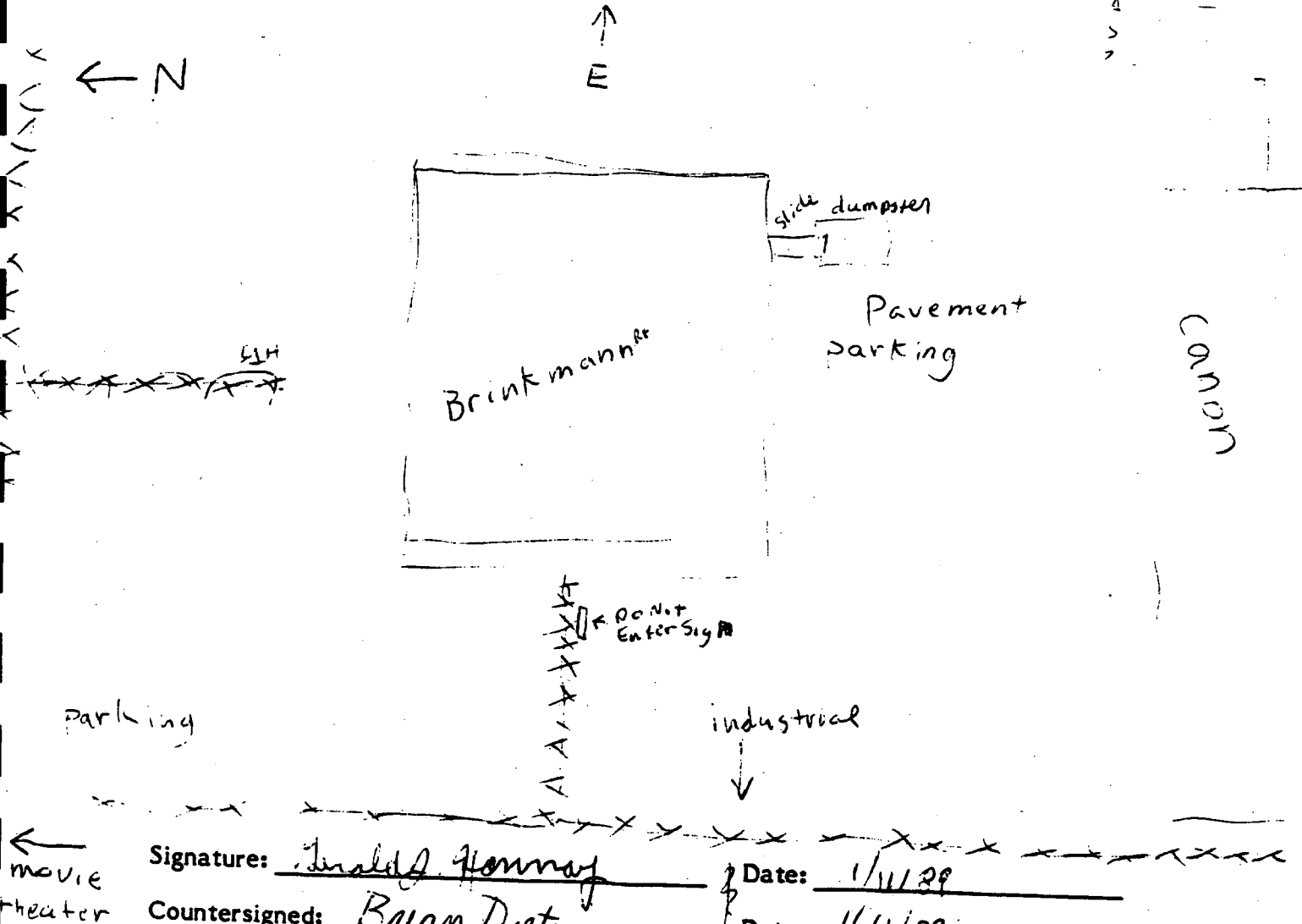
Date: 1/11/89

Site Name: Brinkmann

TDD: 02-8901-19

Site Sketch:

Indicate relative landmark locations (streets, buildings, streams, etc.).
Provide locations from which photos are taken.



Signature: Donald Honnay

Date: 1/11/89

Countersigned: Brian Dietz

Date: 1/11/89

PRELIMINARY ASSESSMENT
INFORMATION REPORTING FORM

Date: 1/11/89

Site Name: Brinkman

TDD: CJ-8901-191

Notes (Periodically indicate time of entries in military time):

12:25 - Located in an industrial area though
has a movie theater about 1,000 ft away or
so. Flat paved area. No smoke stacks or
tanks or drums visible from the outside
of the building. A small recharge basin is
located about 50 feet in front of the Hassel
building

Signature: Gerald J. Hannay

Date: 1/11/89

Countersignature: Bruce D. Dwyer

Date: 1/11/89

INFORMATION REPORTING FORM

Date: _____

Site Name: _____

TDD: _____

Notes (Cont'd):

Attach additional sheets if necessary. Provide site name, TDD number, signature, and countersignature on each.

Signature: _____

Date: _____

Countersignature: Brian Dietz

Date: 1/11/99

**PRELIMINARY ASSESSMENT
INFORMATION REPORTING FORM**

Date: 1/11/89Site Name: BrinkmanTDD: 02-8901-19

Photolog:

Frame/Photo Number	Date	Time	Photographer	Description
E17/51	1/11/89	12:30	Peter van Schoonhoven	corner of sight from west showing fence
E18/51 P1	1/11/89	12:32	P. van Schoonhoven	near corner from west
F19/51 P1	1/11/89	12:35	"	side from South
F20/51 P1	1/11/89	12:36	"	Sign from east of site

Attach additional sheets if necessary. Provide site name, TDD number, signature, and countersignature on each.

Signature: Ronald J. HanningDate: 1/11/89Countersignature: Brian DietzDate: 1/11/89

REFERENCE NO. 2

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

INSTRUCTIONS: If you received a preprinted label, affix it in the space at left. If any of the information on the label is incorrect, draw a line through it and supply the correct information in the appropriate section below. If the label is complete and correct, leave Items I, II, and III below blank. If you did not receive a preprinted label, complete all items. "Installation" means a single site where hazardous waste is generated, treated, stored and/or disposed of, or a transporter's principal place of business. Please refer to the INSTRUCTIONS FOR FILING NOTIFICATION before completing this form. The information requested herein is required by law (Section 3010 of the Resource Conservation and Recovery Act).

FOR OFFICIAL USE ONLY

COMMENTS

INSTALLATION'S EPA I.D. NUMBER

APPROVED

DATE RECEIVED
(yr., mo., & day)

MYD002054351

800818

NAME OF INSTALLATION

BRINKMANN INSTRUMENTS

I. INSTALLATION MAILING ADDRESS

STREET OR P.O. BOX

CANTIAGUE RD

CITY OR TOWN

WESTBURY

ST.

ZIP CODE

NY 11590

II. LOCATION OF INSTALLATION

STREET OR ROUTE NUMBER

CANTIAGUE RD

CITY OR TOWN

WESTBURY

ST.

ZIP CODE

NY 11590

III. INSTALLATION CONTACT

NAME AND TITLE (last, first, & job title)

GORDON RICHARD ENVIRON COORDIN

PHONE NO. (area code & no.)

516-334-7500

IV. OWNERSHIP

A. NAME OF INSTALLATION'S LEGAL OWNER

SYBRON CORPORATION

B. TYPE OF OWNERSHIP
(enter the appropriate letter into box)

VI. TYPE OF HAZARDOUS WASTE ACTIVITY (enter "X" in the appropriate box(es))

F = FEDERAL
M = NON-FEDERAL

M

☐ A. GENERATION☒ B. TRANSPORTATION (complete Item VII)☒ C. TREAT/STORE/DISPOSE☒ D. UNDERGROUND INJECTION

VII. MODE OF TRANSPORTATION (transporters only - enter "X" in the appropriate box(es))

☐ A. AIR☐ B. RAIL☒ C. HIGHWAY☐ D. WATER☐ E. OTHER (specify):

VIII. FIRST OR SUBSEQUENT NOTIFICATION

Mark "X" in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your Installation's EPA I.D. Number in the space provided below.

☒ A. FIRST NOTIFICATION☐ B. SUBSEQUENT NOTIFICATION (complete Item C)

C. INSTALLATION'S EPA I.D. NO.

IX. DESCRIPTION OF HAZARDOUS WASTES

Go to the reverse of this form and provide the requested information.

HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES. Enter the four-digit number from 40 CFR Part 261.31 for each listed hazardous waste from non-specific sources your installation handles. Use additional sheets if necessary.

1					2					3					4					5					6			
23	-	28			23	-	28			23	-	25			23	-	26			23	-	29			23	-	26	
7					8					9					10					11					12			
23	-	25		23	-	26		23	-	26		23	-	26		23	-	26		23	-	26						

13		14		15		16		17		18
23 - 26		23 - 26		23 - 26		23 - 26		23 - 26		23 - 26
19		20		21		22		23		24
23 - 26		23 - 26		23 - 26		23 - 26		23 - 26		23 - 26
25		26		27		28		29		30
23 - 26		23 - 26		23 - 26		23 - 26		23 - 26		23 - 26

31	32	33	34	35	36
U 0 4 4	U 0 0 2	U 0 7 7	U 0 8 0	U 1 1 2	U 1 5 4
23 - 26	23 - 26	23 - 26	23 - 26	23 - 26	23 - 26
37	38	39	40	41	42
23 - 26	23 - 26	23 - 26	23 - 26	23 - 26	23 - 26
43	44	45	46	47	48
23 - 26	23 - 26	23 - 26	23 - 26	23 - 26	23 - 26

49			50			51			52			53			54		
23	-	26	23	-	26	23	-	26	23	-	26	23	-	26	23	-	26

☐ 4. TOXIC
(D000)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE

NAME & OFFICIAL TITLE (type or print)

NAME & OFFICIAL TITLE (Type or print)
Richard D. Gordon - Unit
Environmental Coordinator

DATE SIGNED

8/15/50

JP

REFERENCE NO. 3

FORM 1 GENERAL		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION Consolidated Permits Program (Read the "General Instructions" before starting.)		I. EPA I.D. NUMBER ENYD0002054351	
LABEL ITEMS		PLEASE PLACE LABEL IN THIS SPACE		GENERAL INSTRUCTIONS	
I. EPA I.D. NUMBER				If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.	
III. FACILITY NAME					
V. FACILITY MAILING ADDRESS					
VI. FACILITY LOCATION					

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X'			SPECIFIC QUESTIONS	MARK 'X'		
	YES	NO	FORM ATTACHED		YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X			D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X			F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	X		
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1	SKIP	BRINKMANN INSTRUMENTS INC.
---	------	----------------------------

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)		B. PHONE (area code & no.)	
2	GORDON RICHARD ENVIRON. COORDIN.	516	334 7500

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX		B. CITY OR TOWN		C. STATE	D. ZIP CODE
3	CANTIAGUE RD.	4	WESTBURY	NY	11590

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER		B. COUNTY NAME		C. CITY OR TOWN		D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
5	CANTIAGUE RD.	6	NASSAU	7	WESTBURY	NY	11590	

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST 7 2833 (specify) <u>Medical Chemicals (i.e. In-Vitro Diagnostic)</u>				B. SECOND (specify)			
C. THIRD 7 (specify)				D. FOURTH 7 (specify)			

III. OPERATOR INFORMATION

A. NAME <u>BRINKMANN INSTRUMENTS INC.</u>												B. Is the name listed in Item VIII-A also the owner? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.) F = FEDERAL M = PUBLIC (other than federal or state) S = STATE O = OTHER (specify) <u>P</u> (specify) P = PRIVATE										D. PHONE (area code & no.) A 516 334 7500			
E. STREET OR P.O. BOX <u>ANTIAGUE RD</u>										F. CITY OR TOWN <u>WESTBURY</u>			
G. STATE <u>NY</u>				H. ZIP CODE <u>11590</u>				IX. INDIAN LAND Is the facility located on Indian lands? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					

EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water) N <u>NA</u>				D. PSD (Air Emissions from Proposed Sources) C T I 9 P <u>NA</u>			
B. UIC (Underground Injection of Fluids) U <u>NA</u>				E. OTHER (specify) C T I 9 <u>NA</u> (specify)			
C. RCRA (Hazardous Wastes) R <u>NA</u>				E. OTHER (specify) C T I 9 <u>NA</u> (specify)			

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water features in the map area. See instructions for precise requirements.

NATURE OF BUSINESS (provide a brief description)

Importer & manufacturer of laboratory instrumentation, Manufacturer of In-Vitro diagnostic test kits.

F9: A
51

CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME & OFFICIAL TITLE (type or print) Reiner H. Kopp Ph.D.		B. SIGNATURE <u>[Signature]</u>		C. DATE SIGNED 11/19/80	
---	--	------------------------------------	--	----------------------------	--

MENTS FOR OFFICIAL USE ONLY

II. FIRST OR REVISED APPLICATION

A. FIRST APPLICATION (place an "X" below and provide the appropriate date)

- ☐
2. NEW FACILITY (Complete item below.)

YR.		MO.		DAY	
Y3	24	Y3	24	Y3	24

- ☐ 2. FACILITY HAS A RCRA PERMIT

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

- | PROCESS | PROCESS CODE | APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY |
|--|--------------|---|
| Treatment: | | |
| TANK | T01 | GALLONS PER DAY OR LITERS PER DAY |
| SURFACE IMPOUNDMENT | T02 | GALLONS PER DAY OR LITERS PER DAY |
| INCINERATOR | T03 | TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR |
| OTHER (Use for physical, chemical, thermal or biological treatment) | T04 | GALLONS PER DAY OR LITERS PER DAY |

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS.	G	LITERS PER DAY	V	ACRE-Feet	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR			

C	DUP	T/A	C
1			1
2		12	13

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY						LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY											
		1. AMOUNT (specify)				2. UNIT OF MEASURE (enter code)				1. AMOUNT				2. UNIT OF MEASURE (enter code)							
X-1	S 0 2	600				G															
X-2	T 0 3	20				E															
1	D 79	NOTE: The injection well for this facility is a septic tank, where small amounts of hazardous wastes may enter by way of the lab. sink. The remaining unused capacity can not be determined.																			
2																					
3																					
4	D 79							1000				G									

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)													FOR OFFICIAL USE ONLY												
W N Y D 0 0 2 0 5 4 3 5 1 5 1													W DUP 3 2 DUP												
IV. DESCRIPTION OF HAZARDOUS WASTES (continued)																									
LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES																					
				1. PROCESS CODES (enter)																					
				2. PROCESS DESCRIPTION (if a code is not entered in D(1))																					
1	U044	1	K	D79																					
2	U002	1 000	K	D79																					
3	U077	5000	K	D79																					
4	U080	1 000	K	D79																					
5	U112	2 000	K	D79																					
6	U154	1 000	K	D79																					
7	D002	1 000	K	D79																					
8	D002																								
9	D002																								
10	D002																								
11	D002																								
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included with above
 included with above
 included with above
 included with above

DESCRIPTION OF HAZARDOUS WASTES (continued)

USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

FG: A 55 FG: A 56

EPA I.D. NO. (enter from page 1)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

FACILITY DRAWING

Existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

PHOTOGRAPHS

Existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)

40	46	35.2
----	----	------

LONGITUDE (degrees, minutes, & seconds)

073	32	12.2
-----	----	------

FACILITY OWNER

A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER

2. PHONE NO. (area code & no.)

3. STREET OR P.O. BOX

4. CITY OR TOWN

5. ST.

6. ZIP CODE

OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME (print or type)

B. SIGNATURE

C. DATE SIGNED

Reiner H. Kopp, Ph.D.

11/19/80

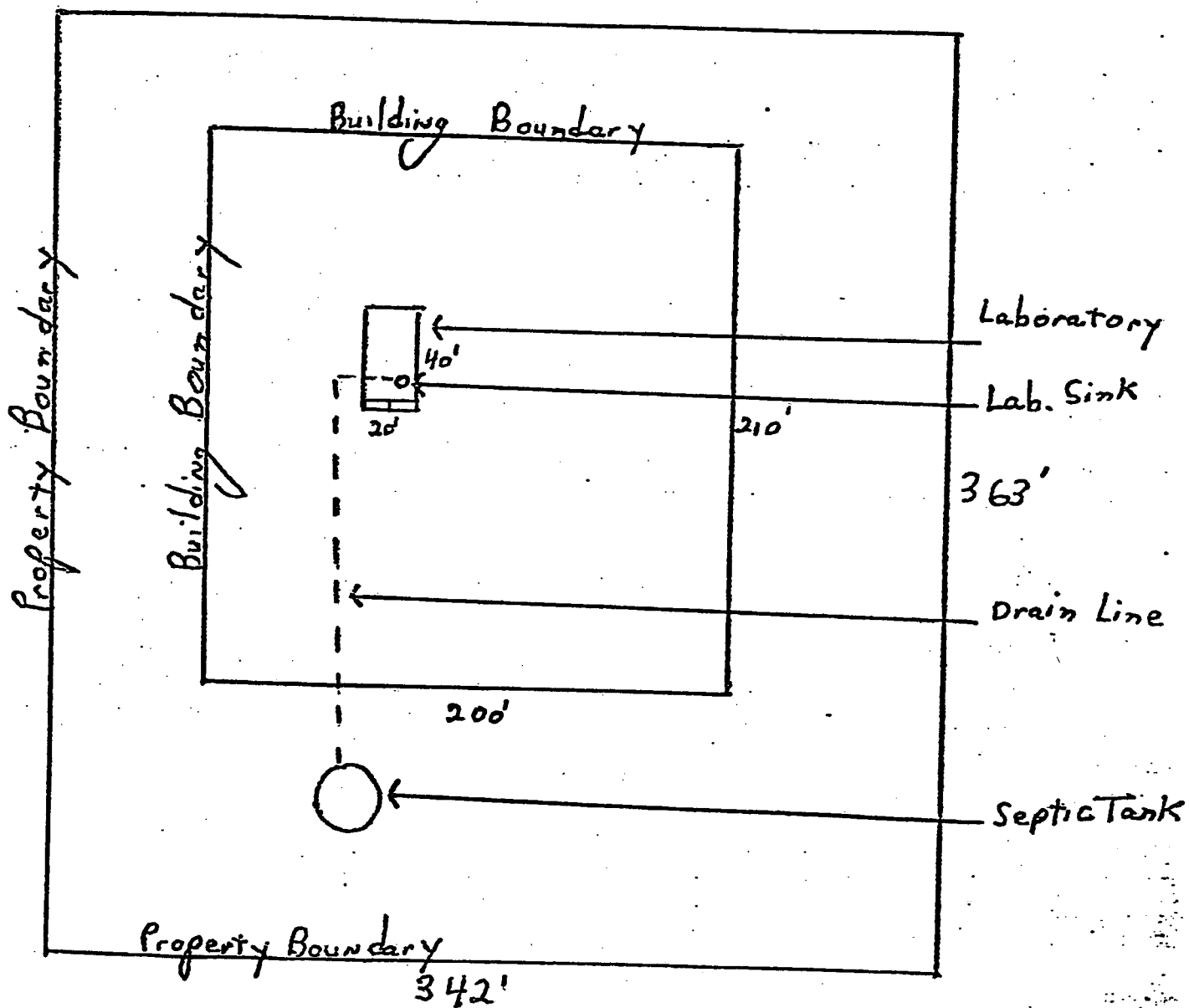
OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME (print or type)

B. SIGNATURE

C. DATE SIGNED



REFERENCE NO. 4

SYBRON

Aug 17 1981
ENVIRONMENTAL
NEW YORK, NY 10007

August 17, 1981

Permit Contact, Permits Adm. Branch
Rm. 432
U.S. E.P.A.
26 Federal Plaza
New York, NY 10007

*changed permit
owner +
mailing
address*

Ref: Change of reporting status for Brinkmann Instruments, Inc.,
EPA I.D. # NYD002054351

Dear Sirs:

As per the attached form, Brinkmann Instruments submitted a Hazardous Waste Permit Application on November 19, 1980. Recent changes within our company indicate that we should withdraw or cancel this permit (Application).

On June 22, 1981, Brinkmann completely divested itself of its Clinical Diagnostics Division which was the sole source of potentially hazardous wastes being introduced into our local environment. Please note the enclosed announcement. From that time, all production and testing of these materials has been removed from the premises and Brinkmann Instruments is currently strictly an importer and distributor of scientific instruments and laboratory equipment.

We trust this information will permit your facility to delete our firm from your files as potential violators of current E.P.A. regulations. Should there be any change in our current status insofar as the utilization of hazardous materials, we shall most certainly keep you informed.

Very truly yours,


J. D. Brown
Vice President

JDB:en

Enclosure

cc: R. Gabel, D. Canfield, J. Nordstrom

REFERENCE NO. 5

SYBRON

June 19, 1981

REC-1

EX-100

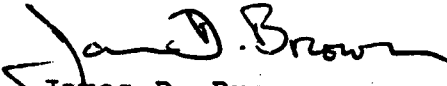
NEW YORK, N.Y. 10007

Dear Clinical Customer:

On June 22, 1981 Brinkmann Instruments sold its Clinical Division to a newly formed company, Biochemical Diagnostics, Inc. The principals of this company are Allan Panetz, Richard Gordon and Amir Farooqi all of whom were formerly employed by Brinkmann in its Clinical Division. Needless to say they are intimately familiar with the production and service requirements of the clinical test kits and products sold previously by Brinkmann.

The items involved are basically all of the Steroid Tests and Drug Screening products covered by catalog numbers beginning with "35". Sample concentrators will still be sold by Brinkmann direct. The address and telephone number of the new company is listed below and all orders should be sent to them. It is our belief as well as theirs that a smaller company devoted 100% to the manufacture and sale of these products can provide faster deliveries and response to clinical customer requirements. All of us at Brinkmann Instruments wish them much success in this new venture. Biochemical Diagnostics, Inc. will be ready to process customer orders within a day of the transfer of the company's assets on June 22nd. At the same time, we at Brinkmann thank you for your past orders for these particular products.

Very truly yours,


James D. Brown
Vice President

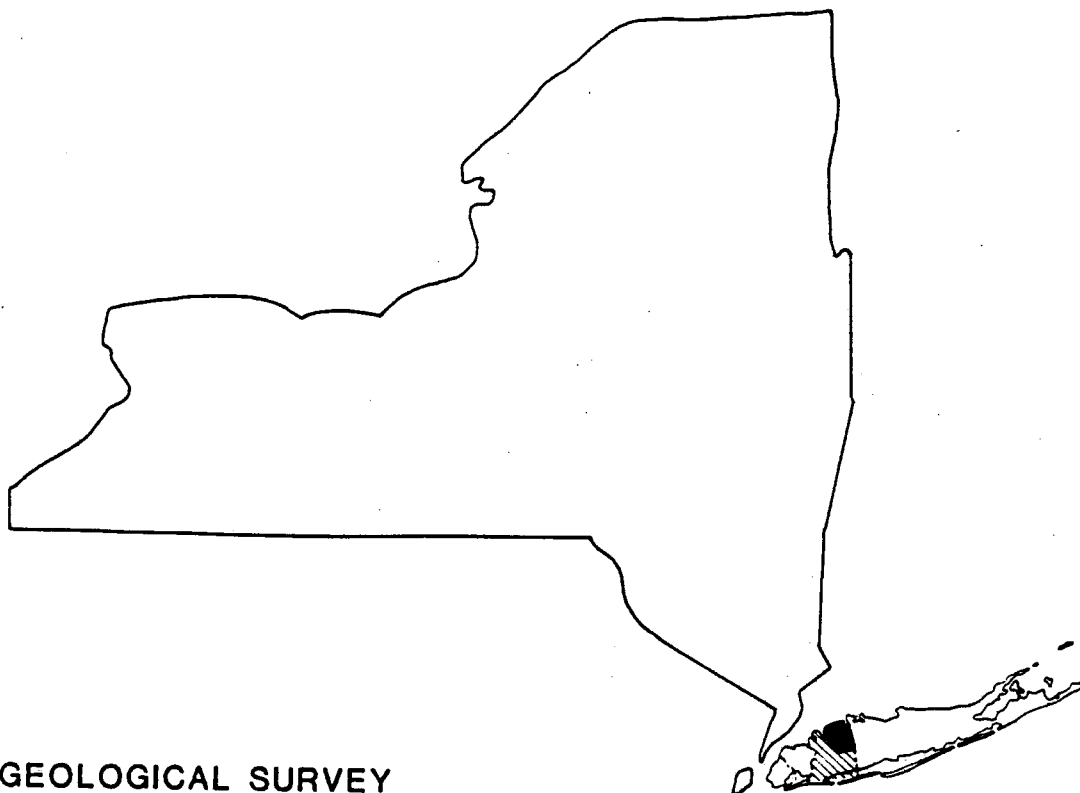
Biochemical Diagnostics, Inc.
121 Toledo Street
Farmingdale, NY 11735

(516) 293-1206

Telex: - Att.Biochem 230199 SWIFT UR

REFERENCE NO. 6

**Hydrogeology and Ground-Water Quality of the
Northern Part of the Town of Oyster Bay,
Nassau County, New York, in 1980**



**U.S. GEOLOGICAL SURVEY
Water-Resources Investigations
Report 85-4051**

**Prepared in cooperation with
NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS**



HYDROGEOLOGY AND GROUND-WATER QUALITY OF THE
NORTHERN PART OF THE TOWN OF OYSTER BAY,
NASSAU COUNTY, NEW YORK, IN 1980

By Chabot Kilburn and Richard K. Krulikas

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations
Report 85-4051

Prepared in cooperation with the
NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS



Syosset, New York

1987

Hydrogeology and Ground-Water Quality of the Northern Part of the Town of Oyster Bay, Nassau County, New York, in 1980

by Chabot Kilburn and Richard K. Krulik

ABSTRACT

This report presents hydrogeologic and water-quality data from the northern part of the Town of Oyster Bay, in the north-shore area of Long Island. The ground-water reservoir underlying the area consists of clay, silt, sand, and gravel layers that form six hydrogeologic units. The units are, from bottom to top, the Lloyd aquifer, Raritan clay, Magothy aquifer, Port Washington aquifer, Port Washington confining unit, and the upper glacial aquifer. Crystalline bedrock underlies the Lloyd aquifer and forms the base of the ground-water system.

The regional drought of 1962-67 caused ground-water levels to decline as much as 16 feet, but the water-table altitude in 1980 equaled or exceeded predrought levels. Water levels measured in wells screened in the lower part of the Magothy aquifer and in the Lloyd aquifer throughout much of the area are still below those measured before the drought but are recovering. Water levels in wells screened in the Lloyd aquifer along the north shore have been declining since the mid-1970's.

Ground water in some areas contains nitrates, volatile organic compounds, and chloride in concentrations that exceed New York State drinking-water standards. Contamination is limited largely to the upper glacial aquifer and upper part of the Magothy aquifer.

Saltwater has been reported in some wells along the shore but probably represents a natural condition rather than saltwater encroachment due to excessive pumping.

INTRODUCTION

Ground water is the sole source of drinking water for all of Nassau County. Because population and ground-water use have increased significantly since the 1950's, proper development of this resource requires detailed knowledge of the hydrogeologic environment and ground-water-quality. The U.S. Geological Survey began a study in cooperation with the Nassau County Department of Public Works to document the hydrogeology of the County. The area of this investigation is the part of the Town of Oyster Bay that lies north of Old County Road (fig. 1). The area contains approximately 71 mi², or 63 percent of the town's 112-mi² area.

HYDROGEOLOGY

The ground-water reservoir underlying the northern part of the Town of Oyster Bay consists of unconsolidated glacial deposits of Pleistocene age and coastal-plain deposits of continental and marine origin of Late Cretaceous age. These unconsolidated deposits consist of gravel, sand, silt, and clay and are underlain by bedrock of early Paleozoic and (or) Precambrian age. The bedrock, which is relatively impermeable, forms the base of the ground-water reservoir.

The thickness, character, and water-bearing properties of the aquifer and the relationships between hydrogeologic and geologic units underlying the study area are depicted in table 1. The correlations should be considered direct relationships as implied in the tables. The upper and lower boundaries of the hydrogeologic units are determined mainly from gross lithologic differences between units rather than the age of the deposits, which forms the basis for geologic correlations. For example, the upper and lower limits of the confining units (Port Washington confining unit and Raritan clay) are placed at intervals where the lithologic sequence changes from predominantly clay to sand or sand and gravel, and these positions may have no time-stratigraphic significance. For this reason, and because differentiation between sediments of Pleistocene and Cretaceous age is difficult and uncertain, it is possible that some deposits of Pleistocene age have been included in the upper part of the Magothy aquifer, which, by present definition, is approximately equivalent to the Magothy Formation-Matawan Group, undifferentiated, of Late Cretaceous age. The three hydrogeologic sections (pl. 1B) show the inferred extent, lateral and vertical relationships, and the variations in depth, thickness, lithology, and structure of these units.

Description of Hydrogeologic Units

Bedrock

Bedrock of early Paleozoic and (or) Precambrian age underlies all of western Long Island (Fisher and others, 1962). The bedrock generally consists of metamorphic and igneous crystalline rocks--schist, gneiss, and granite--and lies at depths ranging from about 350 ft below sea level along the north shore to about 950 ft below sea level in the southeast part of the study area (pl. 2A, and hydrogeologic sections, pl. 1B).

Bedrock is generally regarded as the base of the ground-water reservoir on Long Island because of its density and low permeability. No wells in the Town of Oyster Bay are known to obtain water from bedrock.

Lloyd Aquifer

The Lloyd aquifer is the equivalent of the Lloyd Sand Member of the Raritan Formation of Late Cretaceous age (Cohen and others, 1968, p. 18). It consists of discontinuous layers of gravel, sand, sandy clay, silt, and clay, and lies roughly parallel to the bedrock surface at depths ranging from about

Table 1.--Summary of geology and water-bearing properties of deposits underlying the northern part of Town of Oyster Bay, Nassau County, New York.

[Modified from Swarzenski (1963) and Isbister (1966)]

System	Series	Geologic unit	Hydrogeologic unit	Approximate range in thickness (feet)	Character of deposits forming geologic unit (modified from Swarzenski, 1963, and Isbister, 1966)	Water-bearing properties
QUATERNARY	Holocene	Undifferentiated artificial fill, salt-marsh and swamp deposits, stream alluvium, and shore deposits		0 - 50	Sand, gravel, silt, and clay; organic mud, peat, loam, and shells. Colors are gray, green, black, and brown.	Permeable zones near the shore and in stream valleys may yield small quantities of fresh or brackish water at shallow depths. Clay and silt beneath the north-shore harbors retard saltwater encroachment and confine underlying aquifers.
	Pleistocene	Upper Pleistocene deposits	Upper glacial aquifer	10 - 380	Till, composed of unsorted clay, sand, gravel, and boulders. Outwash deposits of stratified brown sand and gravel. May also contain some lacustrine and marine deposits consisting of clay, silt, and sand; locally fossiliferous.	Till, relatively impermeable, may cause local conditions of perched water and impede downward percolation of precipitation. Outwash deposits of sand and gravel are highly permeable. Wells screened in glacial outwash deposits yield as much as 1,750 gal/min. Specific capacities of large-capacity wells range from 14 to 175 (gal/min)/ft of drawdown. Water is generally fresh and unconfined but may locally contain saltwater near shores.
Unconformity						
CRETACEOUS - QUATERNARY	Upper Cretaceous, Pleistocene, and Holocene(?)	Deposits of Holocene(?) and Pleistocene age, undifferentiated. May locally include eroded remnants of the clay member of the Raritan Formation.	Port Washington confining unit	0 - 360	Clay, solid and silty, gray, gray-green, white, red, mottled, and brown, containing lenses or layers of sand or sand and gravel. May locally contain lignite, shells, foraminifera, and other micro-fossils.	Relatively impermeable throughout much of the area. May be moderately to highly(?) permeable in areas adjacent to inferred limit of Magothy aquifer where sand and sand and gravel content may be large. Confining water in underlying Port Washington and Lloyd aquifers but does not prevent movement of water between upper glacial aquifer and Port Washington aquifer. Lenses of sand and sand and gravel provide sources of water supply and may permit local interchange of water with adjacent formations. One large-capacity well had a reported yield of 2,000 gal/min with a specific capacity of 43 (gal/min)/ft of drawdown. Coarser deposits may locally contain saltwater near shores.
		Deposits of Pleistocene age, undifferentiated, and (or) local erosional remnants of the Lloyd Sand Member of the Raritan Formation.	Port Washington aquifer	0 - 170	Sand, fine to coarse, white, yellow, gray, and brown, or gray and gravel with interbedded clay, silt, and sandy clay.	Moderately to highly(?) permeable. One large-capacity well had a reported yield of 1,100 gal/min with a specific capacity of 11 (gal/min)/ft of drawdown. Water is confined under artesian pressure. Generally contains freshwater but may have high iron content.

CRETACEOUS	Upper Cretaceous	Unconformity				
		Matawan Group Magothy Formation- undifferentiated	Magothy aquifer	0 - 610	Clay, silt, sandy clay, and sand, fine to medium, clayey, white, gray, yellow, pink, and multicolored, in lenticular beds. May contain lenticular beds of coarse sand and gravel in lower part of unit. Lignite, pyrite, and iron oxide concretions may occur through- out the unit.	Moderately to highly permeable. Wells screened in lower part of aquifer yield as much as 1,400 gal/min. Specific capacities of large- capacity wells commonly range from 10 to 50 (gal/min)/ft of drawdown but may be as high as 80 (gal/min)/ft. Aquifer is principal source for public supply. Water is generally of excellent quality. Degree of confinement under artesian pressure is variable; however, artesian conditions increase with depth. Hydraulic continuity may exist between the Magothy aquifer and contiguous Pleistocene aquifers.
		Unconformity				
		Clay member	Raritan clay confining unit	0 - 185	Clay, solid and silty, gray, white, red, and mottled. May contain lenses or layers of fine to medium sand which may locally contain gravel. Sand layers frequently occur near top of unit. Lignite and pyrite are common.	Relatively impermeable. Confines water in underlying Lloyd aquifer but does not prevent movement of water between Magothy and Lloyd aquifers.
	Raritan Formation	Lloyd Sand Member	Lloyd aquifer	0 - 195	Sand, fine to coarse, white, yellow, or gray, and gravel, commonly in a clayey matrix. Contains lenses and layers of solid or silty clay. Beds are usually lenticular and frequently show great lateral changes in composition.	Moderately permeable. Large-capacity wells may yield as much as 1,600 gal/min; specific capacities commonly range from 10 to 19 (gal/min)/ft of drawdown. Water is confined under artesian pressure; some wells flow. Water is generally of excellent quality but may have high iron content.
		Unconformity				
		Crystalline rocks	Bedrock	Not known	Metamorphic and igneous rocks; muscovite-biotite schist, gneiss, and granite(?). May have weathered zone at top.	Relatively impermeable. Contains some water in fractures, but impracticable to develop owing to low permeability.

200 ft below sea level along the north shore to about 700 ft below sea level in the southeast part of the study area (pl. 2B). Its thickness ranges from 0 to 250 ft from northwest to southeast, respectively.

The Lloyd aquifer is a major aquifer in the Town of Oyster Bay. It is probably hydraulically continuous with the adjacent Port Washington aquifer and upper glacial aquifer in the northern part of the study area. Water in the Lloyd aquifer is confined under artesian pressure beneath the Raritan clay.

Well yields during test pumping of large-capacity public-supply wells screened in the Lloyd aquifer have ranged from 500 gal/min to as much as 1600 gal/min.

Raritan Clay

The Raritan clay is a distinct hydrogeologic unit that extends throughout much of the Town of Oyster Bay (pl. 3A). In this area, the Raritan clay may be equivalent to the unnamed clay member of the Raritan Formation of Late Cretaceous age. The Raritan clay consists mainly of light to dark gray, red, white, or yellow clay and variable amounts of silt, and clayey silty fine sand. Sandy beds of varying thickness are common. The top of the Raritan clay is roughly parallel to that of the underlying Lloyd sand member. The upper-surface altitude of the Raritan clay ranges from 150 ft below sea level along the north shore to about 550 ft below sea level in the southeastern part of the study area. Its thickness ranges from 0 to 200 ft from northwest to southeast, respectively.

The Raritan clay is a significant hydrogeologic unit because it confines water in the underlying Lloyd aquifer. Although its hydraulic conductivity is very low, it does not entirely prevent movement of water between the Magothy and Lloyd aquifers. Some public-supply and other wells obtain part of their water supply from the sandy zones in the upper part of the Raritan clay.

Magothy Aquifer

The Magothy aquifer is the equivalent of the Matawan Group-Magothy Formation undifferentiated of upper Cretaceous age. Deposits in this unit consist of beds and lenses of light-gray, fine to coarse sand with some interstitial clay. Detailed lithologic descriptions are given in Soren (1978); Ku and others (1975); and Jensen and Soren (1974).

The top of the Magothy aquifer is not planar, unlike the surfaces of the underlying units. The Magothy surface was deeply eroded during Tertiary time and probably was considerably eroded in Pleistocene time. The upper surface altitude of the Magothy ranges from as high as 200 ft above sea level in the center of the study area to 200 ft below sea level along the northeast edge of the study area (pl. 3B). Its thickness ranges from 0 to 650 ft from northwest to southeast, respectively.

The Magothy aquifer is the principal aquifer underlying Long Island and is the island's main source of water for public supply. The sand beds within the aquifer are moderately to highly permeable. The reported yields during

pumping tests of several public-supply wells screened in the Magothy aquifer in the Town of Oyster Bay ranged from 300 gal/min to as much as 1,500 gal/min. The average yield was about 1,000 gal/min.

The large amount of clay in the upper half of the aquifer causes the water to become increasingly confined with depth. Along the north shore, the Magothy aquifer is probably in hydraulic continuity with the adjacent Port Washington aquifer. The Magothy also has a generally high degree of hydraulic continuity with the overlying upper glacial aquifer, but the degree of continuity may vary considerably from place to place.

Port Washington Aquifer

Two previously unrecognized hydrogeologic units in the northern part of the Town of Oyster Bay are defined as the Port Washington aquifer and Port Washington confining unit. The units were first recognized in the northern part of the Town of North Hempstead (Kilburn, 1979). The inferred limits of the units are shown in plates 4A and 4B, and their relationships to the other hydrologic units are shown on the hydrogeologic sections on plate 1B.

The Port Washington aquifer is a sequence of deposits of Pleistocene and (or) Late Cretaceous age that underlie the north-shore area of the Town of Oyster Bay. The deposits form a distinct hydrogeologic unit that rests upon bedrock and is overlain by a thick sequence of confining clay. The south edge of the deposits overlap and abut the adjacent Cretaceous units. The sediments of the Port Washington aquifer form part of the valley fill in the channels cut into the Cretaceous deposits. These deposits consist largely of sand or sand and gravel and varying amounts of interbedded clay, silt, and sandy clay.

The altitude of the top of the Port Washington aquifer ranges from 150 ft below sea level along the north shore to 450 ft below sea level along the south shore (pl. 4A). Its thickness ranges from 0 to more than 150 ft in the central parts of the study area.

The Port Washington aquifer is moderately to highly permeable and is a major aquifer in the northern parts of the Town of Oyster Bay. The reported yields during pumping tests of public-supply wells screened in the aquifer range from 300 gal/min to 1,200 gal/min. Water in the aquifer is confined beneath the Port Washington confining unit. The hydrogeologic relationships between the Port Washington aquifer and the abutting Lloyd, Magothy, and upper glacial aquifers, as shown in the hydrogeologic sections on plate 1B, suggest that these deposits could be in lateral hydraulic continuity. Potentiometric studies of the head in the Lloyd aquifer made by Swarzenski (1963), Kimmel (1973), and Kilburn (1979) tend to verify a lateral hydraulic continuity between the Port Washington and Lloyd aquifers.

Port Washington Confining Unit

The Port Washington confining unit is a sequence of deposits of Pleistocene or Late Cretaceous to Holocene(?) age that locally underlies the north shore. The unit consists mainly of clay and silt, with scattered lenses

of sand or sand and gravel. (See Kilburn, 1979, for a more detailed description.) The deposits that form the Port Washington confining unit overlie the Port Washington aquifer or overlap the adjacent Cretaceous units and may form part of the valley fill that occupies channels cut into the other Cretaceous deposits. The unit may locally include or consist of erosional remnants of the clay member of the Raritan Formation.

The altitude of the top of the Port Washington confining unit ranges from 100 ft above sea level in the central part of the study area to 300 ft below sea level along the northeastern part (pl. 4B). Its thickness ranges from 0 to more than 150 ft in the central part of the study area.

Upper Glacial Aquifer

The upper glacial aquifer consists of deposits of late Pleistocene and Holocene age that overlie the Magothy aquifer and the Port Washington confining unit and locally abut against or overlie the Port Washington aquifer. The extent and relationships of these deposits to the adjacent hydrogeologic units are shown on plate 1B.

The upper deposits consist mainly of stratified beds of fine to coarse sand and of sand and gravel but also contain thin beds of silt and clay interbedded with coarse-grained material. The outwash that constitutes the bulk of the upper Pleistocene deposits is yellow and brown or, in some places, gray. (See Perlmutter, 1949, and Kilburn, 1979, for further descriptions.)

The upper glacial aquifer, which contains the water table in most of the area, transmits all recharge to the underlying aquifers. Precipitation filtering downward to the water table is the principal source of ground-water recharge. In the past, the upper glacial aquifer was tapped as a water supply by many public-supply wells. Because it has become contaminated by cesspool effluents, fertilizers, and other substances, however, its use for public supply has decreased. Wells tapping the aquifer are now used mainly to supply water for domestic use, irrigation, and commercial and industrial purposes.

The sand and gravel deposits in the upper glacial aquifer are highly permeable and yield large amounts of water to properly constructed wells. The yields of large-capacity public-supply wells screened in the aquifer have been reported to range from 400 gal/min to 1,400 gal/min.

The recent deposits of Holocene age along beaches, streams, swamps, and the bottoms of bays and lakes have not been differentiated from the upper glacial aquifer because they are too thin.

Correlation of Units

The differentiation between deposits of Pleistocene and Cretaceous age throughout most of the northern part of the Town of Oyster Bay is uncertain. On Long Island, the contact between Pleistocene and Cretaceous deposits is an erosional unconformity that is commonly marked by an abrupt lithologic and

mineralogic change. In most of the study area, this boundary has not been delineated with confidence because of the lack of reliable lithologic data (cores and cuttings) and the uncertainty of recognizing this boundary from well drillers' logs, which formed the basis for correlations made during this study. The tops of the Cretaceous deposits may be lower in altitude than indicated on plates 2B, 3A, and 3B because they seem lithologically similar to the overlying Pleistocene deposits in most of the drillers' logs.

The inferred limits of some of the hydrogeologic units in plates 2, 3, and 4 have been extrapolated into areas where little or no data are available. Where the inferred boundaries are questionable, they are so indicated by dashed lines. In the hydrogeologic sections (pl. 1B), extrapolated and questionable extensions of the contacts of some of the units are indicated by question marks.

The hydrogeologic correlations of wells used in constructing the sections and maps in this report are given in table 7 (at end of report) with the altitudes of the tops of the hydrogeologic units penetrated by wells in the northern part of the Town of Oyster Bay.

GROUND-WATER HYDROLOGY

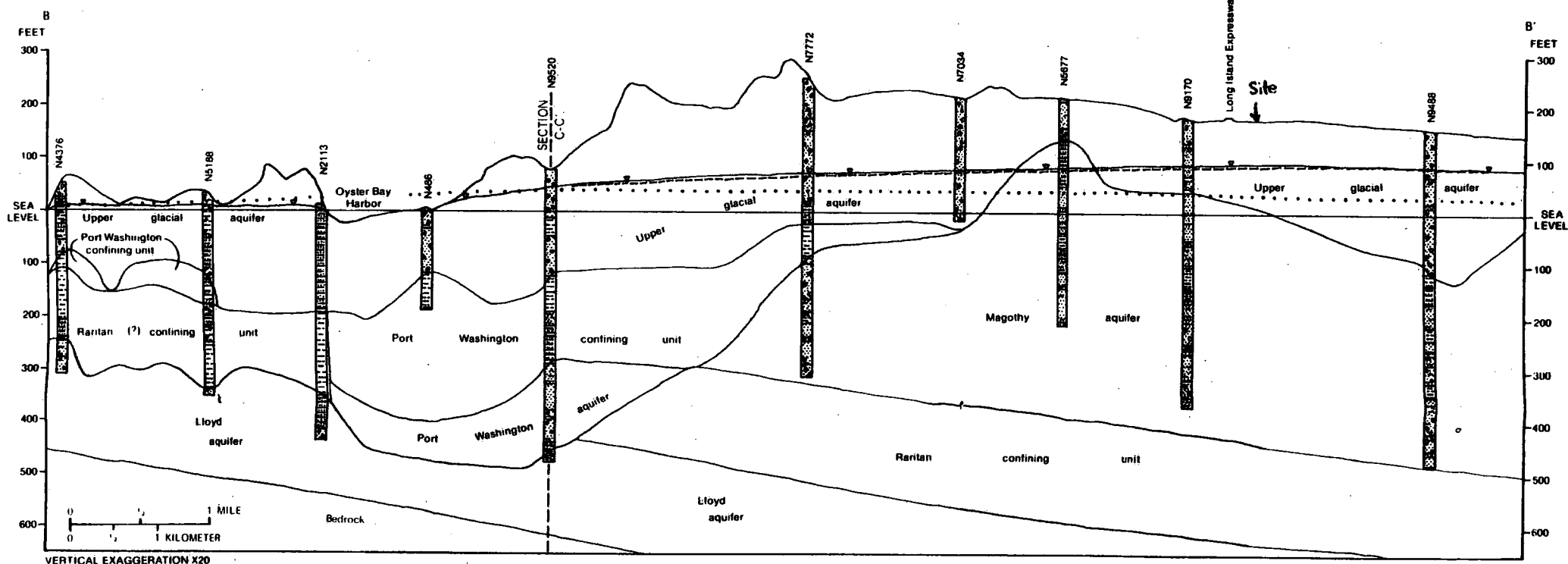
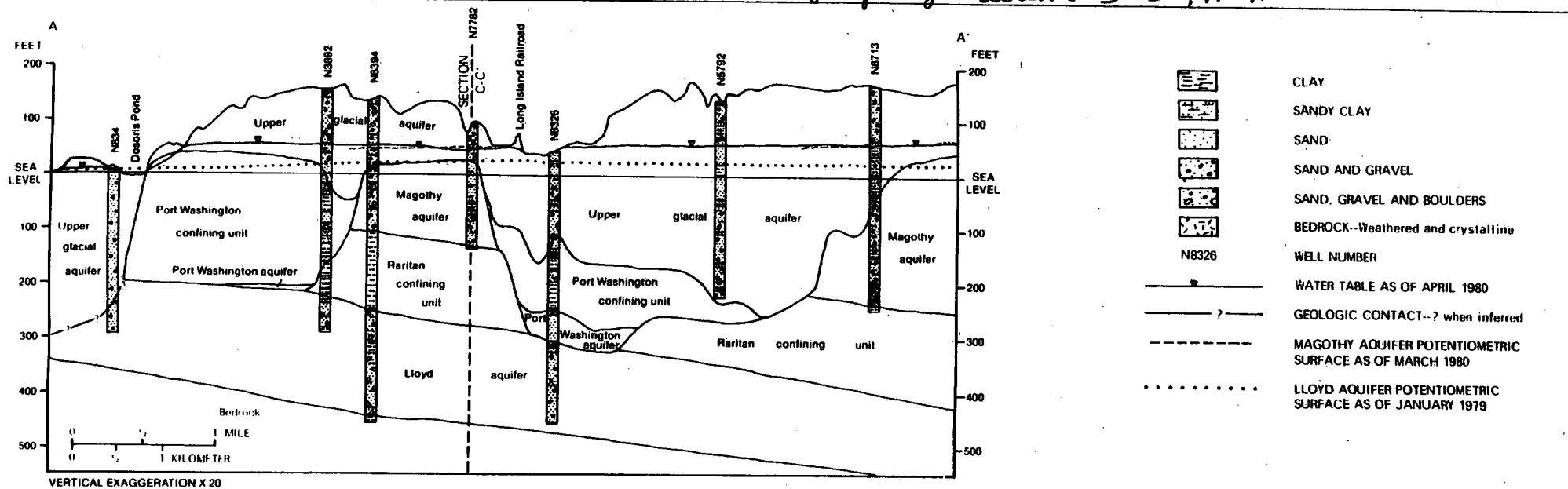
Pumpage

The total reported ground-water pumpage for all purposes in the northern part of the Town of Oyster Bay increased from 1.885 Bgal/yr (5.16 Mgal/d) in 1950 to 10.929 Bgal/yr (29.94 Mgal/d) in 1980. The total reported pumpage is plotted in figure 3A. During 1950-66, pumpage in the area increased at an average annual rate of about 291.6 Mgal/yr (798,900 gal/d); the graph does not reflect a significant effect from the 1962-67 drought. Beginning in 1967, however, the last year of the drought, the trend first reversed then leveled off until 1979. Pumpage during this time ranged between 7.95 Bgal/yr (21.8 Mgal/d) in 1967 and 9.94 Bgal/yr (27.2 Mgal/d) in 1971 and averaged 9.29 Bgal/yr (25.4 Mgal/d). A new upward trend may have started in 1980, when annual pumpage was reported to have been 10.92 billion gallons--an 11.6-percent increase over that in 1979. Whether this is a new trend or a short-term fluctuation will be ascertainable only from future records.

Ground water for public supply and nonpublic supply in the Town of Oyster Bay is derived principally from the upper glacial, Magothy, and Lloyd aquifers. The total amounts pumped from each of the aquifers and the Port Washington aquifer and confining unit are shown in figure 3B.

Ground-water pumpage from the Magothy aquifer is far larger than that from the other aquifers (fig. 3B) and, therefore, determines the trend of the graphs of total pumpage and public-supply withdrawals shown in figure 3A. Pumpage from the Magothy aquifer since 1976 (fig. 3B) has shown a significant upward trend that, through 1980, has increased by an average of more than 680 Mgal/yr (1.86 Mgal/d). This is largely because of a decline in public-supply withdrawals from the upper glacial aquifer and Port Washington confining unit (fig. 3C), but this loss is being made up by increasing pumpage from the

Plate 1B. Hydrogeologic Sections B-B', A-A'



Hydrogeology and Groundwater Quality of the northern Part of the Town of Oyster Bay, Nassau County, in 1980



REFERENCE NO. 7

[6560-01]

(FRL 910-3)

AQUIFERS UNDERLYING NASSAU AND SUFFOLK COUNTIES, NEW YORK

Determination

Notice is hereby given that pursuant to Section 1424(e) of the Safe Drinking Water Act (42 U.S.C. 300f, 360h-3(e); 88 Stat. 1660 et seq.; Pub. L. 93-523) the Administrator of the Environmental Protection Agency has determined that the aquifer system underlying Nassau and Suffolk Counties, Long Island, New York, is the principal source of drinking water for these counties and that, if the aquifer system were contaminated, it would create a significant hazard to public health.

Background

The Safe Drinking Water Act was enacted on December 16, 1974. Section 1424(e) of the Act states: "If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the *FEDERAL REGISTER*. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such

aquifer through a recharge zone so as to create a significant hazard to public health but a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer."

On January 21, 1975, the Environmental Defense Fund petitioned the Administrator to designate the aquifers underlying Nassau and Suffolk Counties, Long Island, New York, as a sole source aquifer under the provisions of the Act. A notice of receipt of this petition, together with a request for comments, was published in the *FEDERAL REGISTER*, Thursday, June 12, 1975. Written comments were submitted by the Environmental Defense Fund (EDF) on August 7, 1975, supporting their petition. A letter from the Director of the Nassau-Suffolk Regional Planning Board, dated October 1, 1976, requested that designation be delayed until after the completion of the areawide waste management (208) planning process for Long Island.

Because of the limited response to the *FEDERAL REGISTER* notice, EPA issued a press release and mailed an information sheet to elected officials and environmental groups on Long Island in March 1977. In addition, a presentation was made to the Citizens Advisory Committee (CAC) of the 208 planning agency and to the executive committee of the Long Island Water Conference. In response to these activities EPA received three comments: a letter from EDF questioning why project review would exclude direct Federal projects, a letter from a member of the East Hampton Planning Board expressing support for the designation, and a letter from the CAC requesting that designation be delayed until after the completion and approval of the Long Island 208 plan.

In considering the comments received, we could not agree with the letters requesting further delay since we do not believe that the review process under Section 1424(e) will constrain the options of 208 planning.

On the basis of the information which is available to this Agency, the Administrator has made the following findings, which are the basis for the determination noted above:

(1) The aquifers underlying Nassau and Suffolk Counties are the sole or principal drinking water source for the area. They supply good quality water for about 2.5 million people. Current water supply treatment practice for public supplies is generally limited to disinfection for drinking purposes, with some plants capable of nitrate removal. There are also numerous private sources. There is no alternative source of drinking water supply which could economically replace this aquifer system.

(2) The aquifer system is vulnerable to contamination through its recharge zone. Since contamination of a ground-water aquifer can be difficult or impossible to reverse, contamination of the the aquifer system underlying Nassau and Suffolk Counties, New York, would pose a significant hazard to those people dependent on the aquifer system for drinking purposes.

Among the determinations which the Administrator must make in connection with the designation of an area under Section 1424(e) is that the area's sole or principal source aquifer or aquifers, "if contaminated, would create a significant hazard to public health" Obviously, threats to the quality of the drinking water supply for such a large population could create a significant hazard to public health. The EPA does not construe this provision to require a determination that projects planned or likely to be constructed will in fact create such a hazard; it is sufficient to demonstrate that approximately 2.5 million people depend on the aquifer system underlying Nassau and Suffolk Counties as their principal source of drinking water, and that the aquifer system is vulnerable to contamination through its recharge zone.

Section 1424(e) of the Act requires that a Federal agency may not commit funds to a project which may contaminate the aquifer system through a recharge zone so as to create a significant hazard to public health. The recharge zone is that area through which water enters into the aquifer system. Because of groundwater movement within these aquifers, the recharge zone is considered to be the entire area of Nassau and Suffolk Counties. However, both horizontal and vertical boundaries of the recharge zone are discussed in the background document under the section entitled "Area of Consideration."

The data upon which these findings are based are available to the public and may be inspected during normal business hours at the office of the Environmental Protection Agency, Region II, 26 Federal Plaza, New York, New York 10007. It includes a support document for designation of the aquifers underlying Nassau and Suffolk Counties, New York, and maps of the area within which projects will be subject to review.

A copy of the above documentation is also available at the U.S. Waterside Mall, Environmental Protection Agency, Public Information and Reference Unit, Room 2922, 401 M Street S.W., Washington, D.C. 20460.

The EPA has issued proposed regulations for the selective review of Federal financially assisted projects which may contaminate the aquifer system underlying Nassau and Suffolk Counties, New York, through the recharge

zone so as to create a significant hazard to public health. These proposed regulations were published in the *Federal Register* issue of September 29, 1977, and public comments were requested. They will be used as interim guidance for project review until their promulgation during 1978.

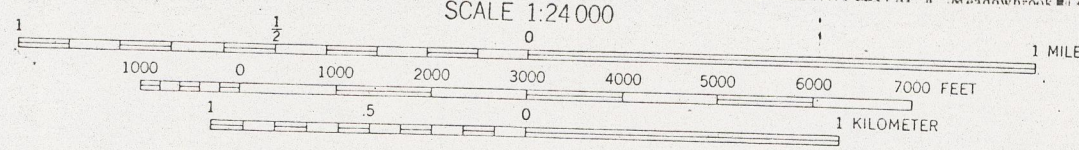
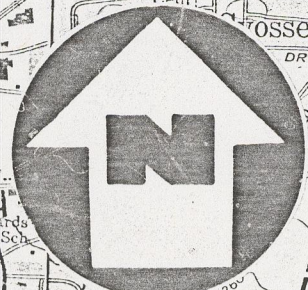
EPA Region II is working with the Federal agencies which may in the near future fund projects in the area of concern to EPA to develop inter-agency procedures whereby EPA will be notified of proposed commitments for projects which could contaminate the bicounty area's sole source aquifer system. Although the project review process cannot be delegated, the Regional Administrator in Region II will rely to the maximum extent possible upon any existing or future State and local control mechanisms in protecting the ground-water quality of the aquifer system underlying Nassau and Suffolk Counties, New York. Included in the review of any Federal financially assisted project will be coordination with the State and local agencies. Their determinations will be given full consideration and the Federal review process will function so as to complement and support State and local mechanisms.

Dated: June 12, 1978.


DOUGLAS M. COSTLE,
Administrator.

(FR Doc. 78-17067 Filed 6-20-78; 8:45 am)

REFERENCE NO. 8



SCALE 1:24,000
CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 2.7 FEET

		TITLE: THREE MILE VICINITY MAP	
DATE : 04/04/89		SITE : BRINKMANN INSTRUMENTS INC., WESTBURY, N.Y.	
TDD : 02-8901-19			
QUAD : HICKSVILLE, N.Y.		FIGURE NUMBER:	SCALE: 1" = 2000'

REFERENCE NO. 9

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual (HW-10)

**Originally Published in
the July 16, 1982, *Federal Register***

**United States
Environmental Protection
Agency**

1984

TABLE 2
PERMEABILITY OF GEOLOGIC MATERIALS*

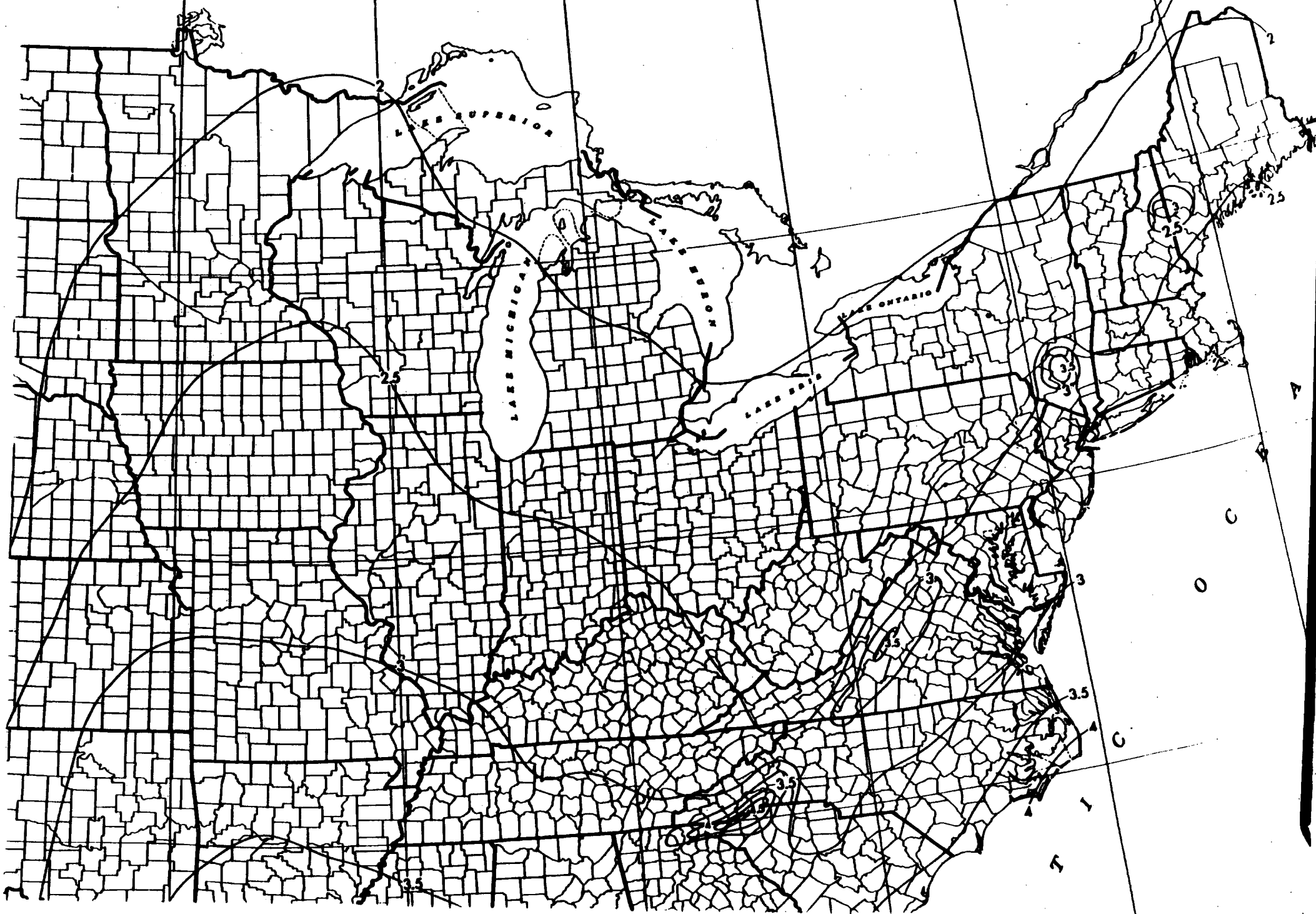
Type of Material	Approximate Range of Hydraulic Conductivity	Assigned Value
Clay, compact till, shale; unfractured metamorphic and igneous rocks	$<10^{-7}$ cm/sec	0
Silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomites, and sandstone; moderately permeable till	$10^{-5} - 10^{-7}$ cm/sec	1
Fine sand and silty sand; sandy loams; loamy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	$10^{-3} - 10^{-5}$ cm/sec	2
Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite	$>10^{-3}$ cm/sec	3

*Derived from:

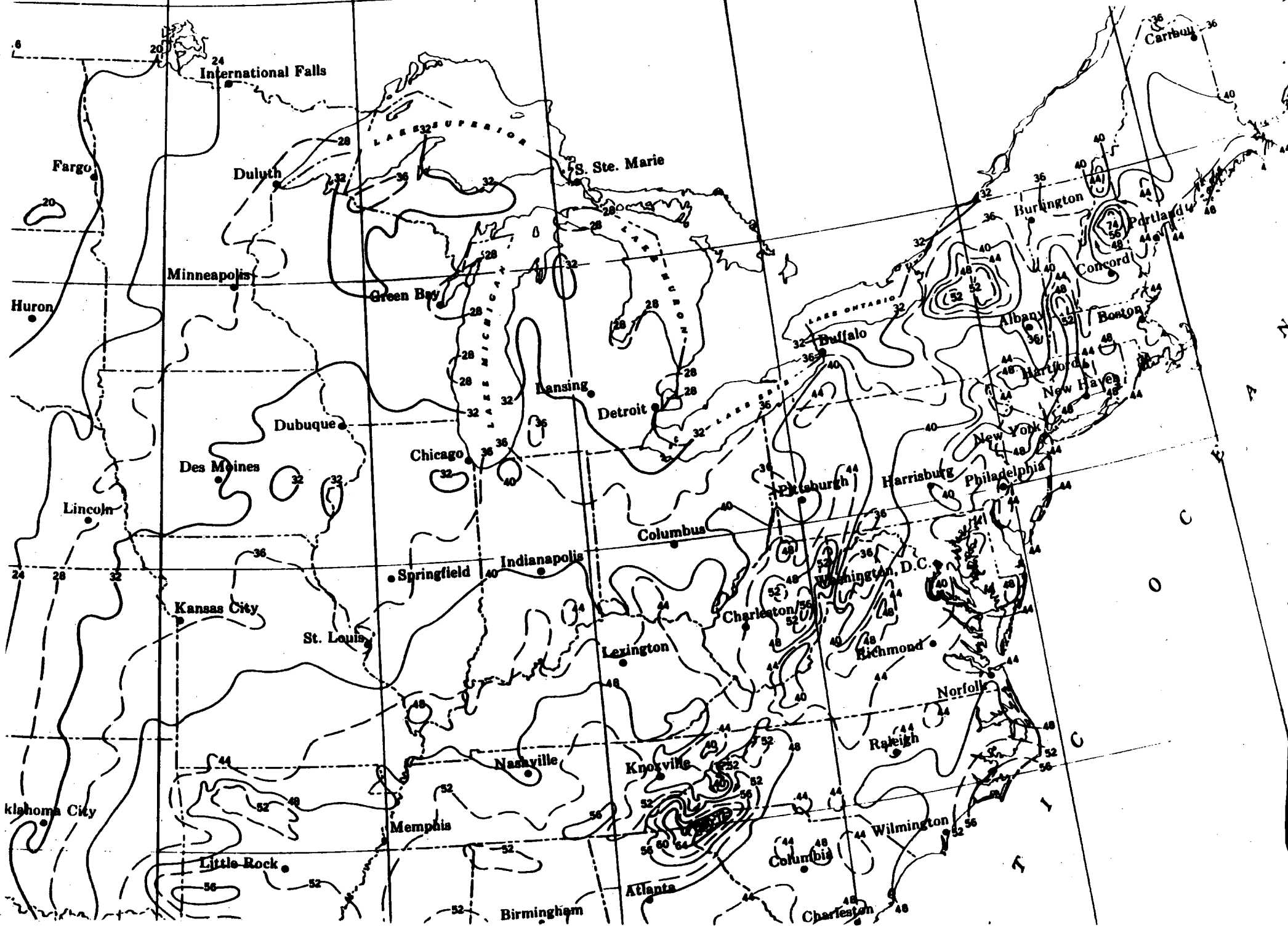
Davis, S. N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWitt ed., Academic Press, New York, 1969

Freeze, R.A. and J.A. Cherry, Groundwater, Prentice-Hall, Inc., New York, 1979

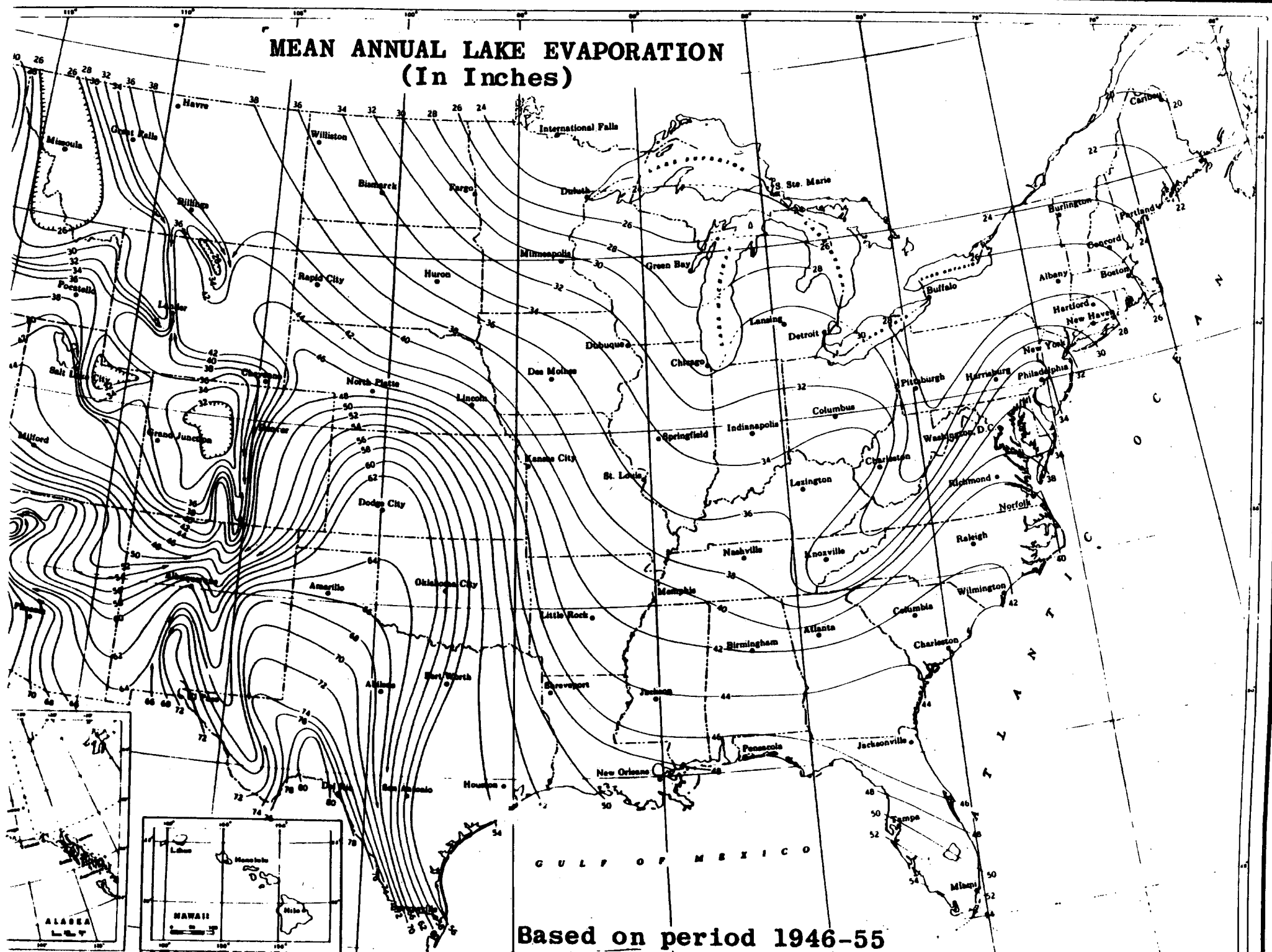
1 YEAR 24-HOUR RAINFALL (inches)



NORMAL ANNUAL TOTAL PRECIPITATION (Inches)



MEAN ANNUAL LAKE EVAPORATION (In Inches)



Based on period 1946-55

REFERENCE NO. 10

HICKSVILLE WATER DISTRICT

4 DEAN STREET

HICKSVILLE, N. Y. 11802

PHONE
(516) 931-0184

RECEIVED

March 22, 1988

NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey

Att: Mr. E.L. Leonard

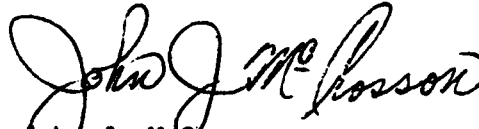
Dear Mr. Leonard:

Enclosing please find the list you requested containing well numbers, depth and aquifers used by the nineteen (19) wells operated by the Hicksville Water District.

If I may be of any further assistance please feel free to contact me at the above number.

Very truly yours,

HICKSVILLE WATER DISTRICT



John J. McCrosson
Assistant Superintendent

Enc

JJM/jps



REFERENCE NO. 11

Village of Old Westbury

INCORPORATED MAY 10, 1924

MAYOR
GILBERT M. COLOMBO, JR.

1 STORE HILL ROAD

P.O. BOX 290

OLD WESTBURY, N.Y. 11568

(516) 626-0800

VILLAGE CLERK - TREASURER

R. BUSCARELLO

SUPT. PUBLIC WORKS

A. J. LINDON

VILLAGE JUSTICE

W. F. RUEGER

TRUSTEES
E. A. SIMPSON
R. GACHOT
S. WEINSTEIN
H. BLAU

RECEIVED

APR 05 REC'D

NUS CORPORATION
REGION II

SENT TO _____

April 4, 1988

Edward L. Leonard
Nus Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey 08837

Dear Mr. Leonard:

As requested, enclosed please find your area of interest map showing location and number of our wells and the outline of our water district within the area.

The following is the additional information on well depth and formation.

Well #1 N152
Depth of screen 478'
Formation magothy

Well #4 N7549
Depth of screen 499'
Formation magothy

Well #5 N8658
Depth of screen 610'
Formation magothy

Village population served by these three wells is approximately 3200.

Blue lines on attached map indicates the boundary line of our water district within your area of interest.

Very truly yours,

Arthur J. Lindon
Supt. Public Works

AJL:hs
Att.



REFERENCE NO. 12

02-3882-07

Westbury Water District



160 Drexel Avenue Westbury, L.I., N.Y. 11590
516-333-0427

DONALD A. CROUCHLEY, Chairman
FRANK J. IADEVIA, Secretary
ALFRED ARDIS, Treasurer
ITALO J. VACCHIO, Superintendent

RECEIVED

March 21, 1988

SENT TO _____

NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey 08837

Attention: E. L. Leonard

Dear Mr. Leonard:

In response to your letter of March 17, 1988, (copy attached), please find below the requested information:

1. See attached map.

STATE WELL NO.	W.W.D. WELL NO.	DEPTH	AQUIFERS
N-101	6	341'	Magothy
N-7785	7	400'	Magothy
N-2602	9	805'	Lloyd
N-5007	10	560'	Magothy
N-5654	11	561'	Magothy
N-5655	12	260'	Magothy
N-6819	12A	270'	Magothy
N-7353	14	390'	Magothy
N-8007	15	564'	Magothy
N-8497	16	544'	Magothy
N-104510	17	600'	Magothy

4. Population estimated to be 24,000. All wells are interconnected.

5. None known.

- 6.
1. Carle Place Water District
 2. Town of Hempstead Water District
 3. Inc. Village of Old Westbury
 4. Hicksville Water District
 5. Jericho Water District

March 21, 1988

Westbury Water District

Page #2.

Should you require any other information, please contact me at the above address.

Very truly yours,

WESTBURY WATER DISTRICT

A handwritten signature in dark ink, appearing to read "Italo J. Vacchio". The signature is written in a cursive style with a large, looped "V" and "C".

Italo J. Vacchio
Superintendent

IJV/mh
Enc.

WVD
WELL NO. 17

WVD
WELL NO. 15

WVD
WELL NO. 14

WVD
WELL NO. 10

WVD
WELL NO. 12

WVD
WELL NO. 12A

MAR 6 1997

SHEET

REFERENCE NO. 13



EDWARD P. BRACKEN, JR., CHAIRMAN
NICHOLAS J. BARTILUCCI, TREASURER
KENNETH J. DUNNE, SECRETARY
WILLIAM EVERS, SUPERINTENDENT
GREG G. HENDRICKSON, OFFICE MANAGER

125 CONVENT ROAD
SYOSSET, NEW YORK 11791
TEL. 921-8280

May 9, 1988

Mr. Edward Leonard
NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, New Jersey 08837

Dear Mr. Leonard:

Please find enclosed your "Marked-up" map which shows Jericho Water District boundaries in yellow. I have listed J.W.D. wells in red, with the number at each location. The wells are all interconnected with the rest of our wells, which total 20. We serve approximately 63,000 people.

The eight wells in this area are all in the magothy aquifer and their depths are as follows:

# 6	514'
# 7	484'
# 9	565'
#10	453'
#14	615'
#15	535'
#16	490'
#22	459'

Other water utilities have been marked on map with notation. If you have any further questions, please do not hesitate to call me.

Very truly yours,

Board of Commissioners
Jericho Water District

William Evers
District Superintendent

WE/ar



REFERENCE NO. 14

Town of Hempstead

Department
of
Water

1995 PROSPECT AVENUE, EAST MEADOW, N.Y. 11554
(516) 794-8300



HELLO
'Isor
ERSON

Board Members
EUGENE L. WEISBEIN
JOSEPH G. CAIRO, JR.
MARTIN B. BERNSTEIN
RICHARD V. GUARDINO, JR.
ANGIE M. CULLIN
PATRICK A. ZAGARINO

DANIEL M. FISHER, JR.
Town Clerk

ROBERT D. LIVINGSTON, JR.
Receiver of Taxes

DANIEL DAVIS, P.E.
Commissioner

April 6, 1988

Mr. Edward L. Leonard
NUS Corporation
1090 King Georges Post Road
Suite 1103
Edison, NJ 08837

Dear Mr. Leonard:

Below is the information requested in your letter of March 30, 1988. There are two wells located on Iris Place in the Bowling Green Estates Water District. Both wells are located in the magothy range and serves a population of approximately 12,000. Well #1, N-8956 is 535 feet deep; Well #2, N-8957 is 598 feet deep.

I am returning your map with the locations of the above wells marked in red.

If you should require any further assistance, please do not hesitate to contact me at (516) 794-8300, Ext. 204.

Very truly yours,


Harold V. Morgan
Administrative Assistant

HVM:th

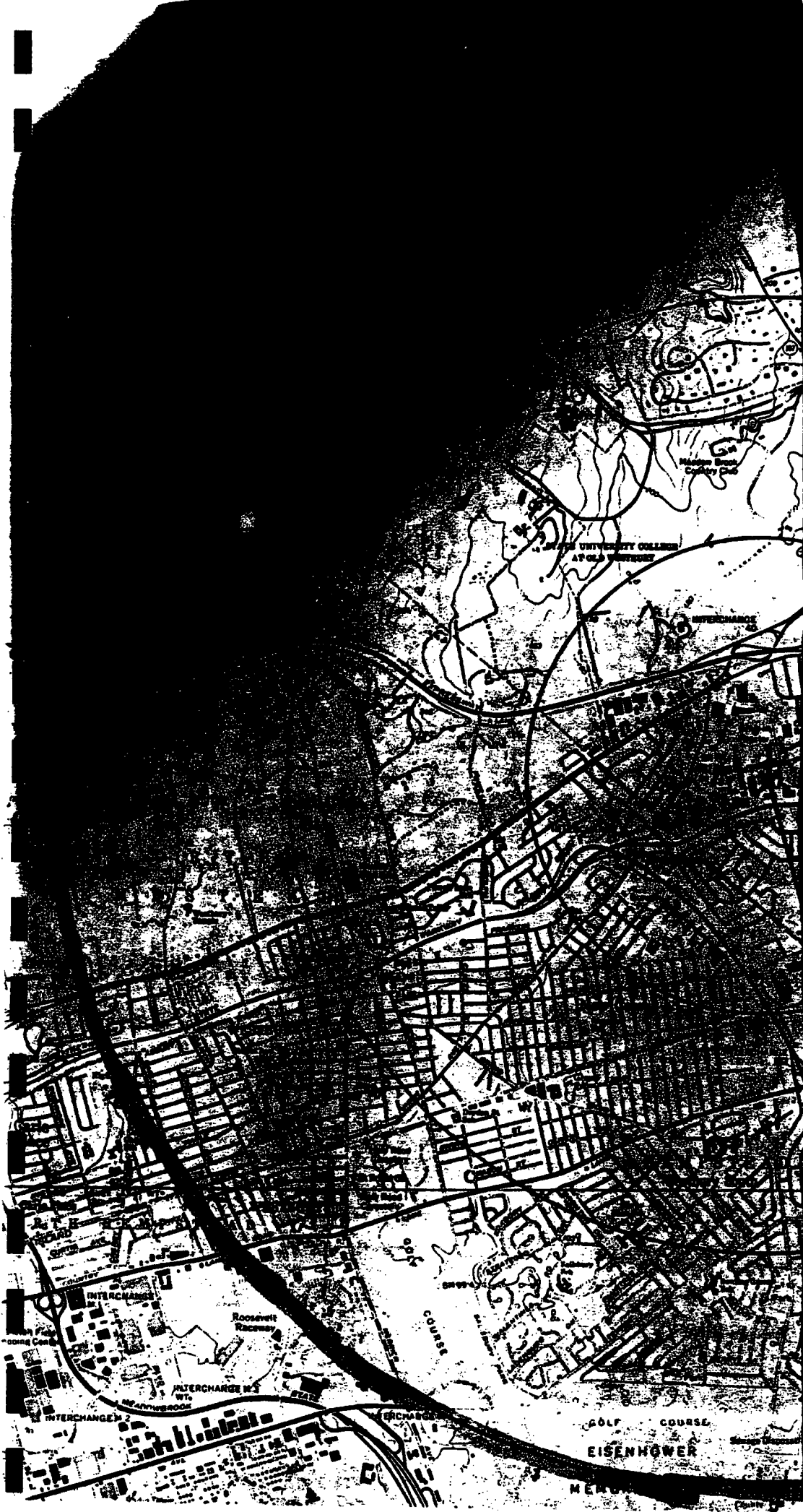
enc. (2)

RECEIVED

APR 07 1988

NUS CORPORATION
REGION II

SENT TO



Brickmont

REFERENCE NO. 15

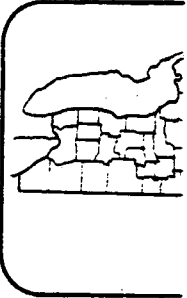


**New York State Atlas of
Community Water System Sources
1982**

**NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION**



ATLANTA



SCALE 1:250,000

5

5 MILES

NORTH

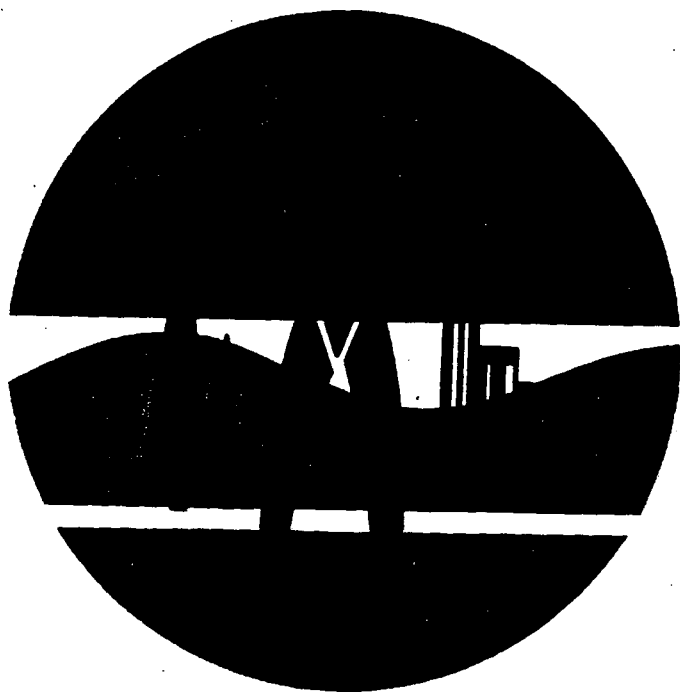
NASSAU COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Albertson Water District.	13500.	Wells
2	Bayville Village.	7500.	Wells
3	Bethpage Water District.	32000.	Wells
4	Bowling Green Water District.	12000.	Wells
5	Carle Place Water District.	11000.	Wells
6	Citizens Water Supply Company.	30000.	Wells
7	Deforest Drive Association.	25.	Wells
8	East Meadow Water District.	52000.	Wells
9	Farmingdale Village.	7946.	Wells
10	Franklin Square Water District.	20000.	Wells
11	Freeport Village.	38272.	Wells
12	Garden City Park Water District.	22596.	Wells
13	Garden City Village.	22927.	Wells
14	Glen Cove City.	24618.	Wells
15	Hempstead Village.	40404.	Wells
16	Hicksville Water District.	58000.	Wells
17	Jamaica Water Supply Company.	128448.	Wells
18	Jericho Water District.	64000.	Wells
19	Levittown Water District.	50000.	Wells
20	Lido-Point Lookout Water District.	10000.	Wells
21	Locust Valley Water District.	8500.	Wells
22	Long Beach City.	34073.	Wells
23	Long Island Water Corporation.	258936.	Wells
24	Manhasset-Lakeville Water District.	44730.	Wells
25	Massapequa Water District.	52000.	Wells
26	Mill Neck Estates Water Supply.	240.	Wells
27	Mineola Village.	20600.	Wells
28	New York Water Service.	172180.	Wells
29	Old Westbury Village.	3100.	Wells
30	Oyster Bay Water District.	10225.	Wells
31	Plainview Water District.	40000.	Wells
32	Plandome Village.	2616.	Wells
33	Port Washington Water District.	35000.	Wells
34	Rockville Centre Village.	25405.	Wells
35	Roosevelt Field Water District.	1640.	Wells
36	Roslyn Water District.	27500.	Wells
37	Sands Point Village.	3002.	Wells
38	Sea Cliff Water Company.	17850.	Wells
39	Sel-Bra Acres Water Supply.	80.	Wells
40	South Farmingdale Water District.	49900.	Wells
41	Split Rock Water Supply.	25.	Wells
42	Uniondale Water District.	25000.	Wells
43	West Hempstead-Hempstead Garden Water District.	32000.	Wells
44	Westbury Water District.	20050.	Wells
45	Williston Park Village.	8216.	Wells
Non-Municipal Community			
46	Community Hospital at Glen Cove.	1350.	Wells
47	Planting Fields Arboretum.	90.	Wells
48	Stuart, Walker, Zimmer Water Supply.	41.	Wells

REFERENCE NO. 16

Catalog of Recharge Basins on Long Island, New York, in 1969

by
G. E. Seaburn and D. A. Aronson
U.S. Geological Survey



BULLETIN 70
1973

New York State Department of Environmental Conservation

RECHARGE BASINS

Most of the recharge basins on Long Island are unlined open pits that dispose of storm runoff from residential, commercial, and industrial areas, and from highways (Seaburn, 1970). About 30 basins solely dispose of effluent from sewage-treatment plants. Those basins were not included in the study and are not considered in this report. The area of basins that dispose of storm runoff generally ranges from 0.1 to 30 acres and averages 1.5 acres. The average depth below land surface is 10 feet, but the depth of a few is as much as 40 feet. Storm runoff to recharge basins flows by gutters to street inlets. The street inlets are interconnected by sewers that carry storm water into the basins, where it infiltrates moderately to highly permeable sand and gravel deposits above the ground-water reservoir. Figure 2 shows the location of all the inventoried recharge basins that received storm runoff on Long Island in 1969.

Design and construction of recharge basins on Long Island is regulated and approved by the local governments. Available information on completed basins varies greatly in detail. None of the departments of local government maintains an up-to-date catalog of the type of data presented here.

SOURCES OF DATA

Data were compiled from several sources. These included engineering drawings of proposed land developments; maps of topography, water-table contours, geology, and soils; and aerial photographs.

Most of the data were obtained from engineering drawings of land developments filed with the local government's department responsible for regulating and approving construction designs. In general, the drawings contain the following information: A basin's location, date of construction, design capacity, actual capacity, dimensions, use, bottom altitude, overflow altitude, and land-surface altitude.

U.S. Geological Survey topographic maps were used to verify basin locations and land-surface altitudes of many basins. Aerial photographs were also used to verify basin locations.

The recharge basins were plotted on base maps from which the nearest street intersection as well as the latitude and longitude of each basin were determined.

A water-table contour map developed by Kimmel (1971) was used to estimate water-table altitudes below each basin. Geologic maps (Fuller, 1914; Perlmutter and Geraghty, 1963; Swarzenski, 1963; Lubke, 1964; Isbister, 1966; and Soren, 1970) and soil maps (Lounsbury and others, 1928; and Warner, 1969) were used to determine geologic and soil environment at each basin.

REFERENCE NO. 17

BRINKMANN INSTRUMENTS

Lat: 40°46'35"N

Long: 73°33'12"W

List of Dataset: NYHF Number of Records = 6 Group = 1

REC #	POP	HOUSE	DISTANCE	SECTOR
1	2187	664	0.400000	1
2	0	0	0.810000	1
3	10416	3011	1.60000	1
4	30600	9646	3.20000	1
5	62243	19143	4.80000	1
6	75346	21339	6.40000	1

	Pop.	HOUSE
1/4	2187	664
1/2	2187	664
1	12603	3675
2	43203	13321
3	105446	32464
4	180792	53803

REFERENCE NO. 18

code of federal regulations

RCRA

Protection of
Environment

40

PARTS 190 TO 299
Revised as of July 1, 1988



Environmental Protection Agency

§ 261.33

(f) The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in paragraphs (a) through (d) of this section, are identified as toxic wastes (T), unless otherwise designated and are subject to the small quantity generator exclusion defined in § 261.5 (a) and (g).

[Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), R (Reactivity), I (Ignitability) and C (Corrosivity). Absence of a letter indicates that the compound is only listed for toxicity.]

These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous waste No.	Chemical abstracts No.	Substance
U001	75-07-0	Acetaldehyde (I)
U034	75-87-8	Acetaldehyde, trichloro-
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-
U005	53-98-3	Acetamide, N-9H-fluoren-2-yl-
U240	194-75-7	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters
U112	141-78-8	Acetic acid ethyl ester (I)
U144	301-04-2	Acetic acid, lead(2+) salt
U214	563-68-8	Acetic acid, thallium(1+) salt
see F027	93-78-5	Acetic acid, (2,4,5-trichlorophenoxy)-
U002	67-64-1	Acetone (I)
U003	75-05-8	Acetonitrile (I,T)
U004	98-86-2	Acetophenone
U005	53-98-3	2-Acetylaminofluorene
U006	75-38-5	Acetyl chloride (C,R,T)
U007	78-08-1	Acrylamide
U008	78-10-7	Acrylic acid (I)
U009	107-13-1	Acrylonitrile
U011	61-82-5	Amitrole
U012	62-53-3	Aniline (I,T)
U138	75-60-5	Arsinic acid, dimethyl-
U014	492-80-8	Auramine
U015	115-02-6	Azaserone
U010	50-07-7	Azirino[2,3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[[aminocarbonyloxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-
U157	58-49-5	Benz[1]aceanthrylene, 1,2-dihydro-3-methyl-
U016	225-51-4	Benz[c]acridine
U017	98-87-3	Benzal chloride
U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
U018	58-55-3	Benz[a]anthracene
U094	57-97-6	Benz[a]anthracene, 7,12-dimethyl-
U012	62-53-3	Benzenamine (I,T)
U014	492-80-8	Benzenamine, 4,4'-carbonimidoylbis(N,N-dimethyl-
U049	3185-93-3	Benzenamine, 4-chloro-2-methyl-, hydrochloride
U093	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	95-63-4	Benzenamine, 2-methyl-
U353	108-49-0	Benzenamine, 4-methyl-
U158	101-14-4	Benzenamine, 4,4'-methylenebis(2-chloro-
U222	638-21-5	Benzenamine, 2-methyl-, hydrochloride
U181	99-55-8	Benzenamine, 2-methyl-5-nitro-
U019	71-43-2	Benzene (I,T)
U038	510-15-8	Benzenoacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U030	101-55-3	Benzene, 1-bromo-4-phenoxy-
U035	305-03-3	Benzenobutanoic acid, 4-[bis(2-chloroethyl)amino]-
U037	108-90-7	Benzene, chloro-
U221	25376-45-8	Benzenediamine, ar-methyl-
U028	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U069	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	84-68-2	1,2-Benzenedicarboxylic acid, diethyl ester
U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
U070	95-50-1	Benzene, 1,2-dichloro-
U071	541-73-1	Benzene, 1,3-dichloro-
U072	108-46-7	Benzene, 1,4-dichloro-
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethyldiene)bis[4-chloro-

Haz- ardous waste No.	Chemical abstracts No.	Substance
U017	98-87-3	Benzene, (dichloromethyl)-
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl- (R,T)
U239	1330-20-7	Benzene, dimethyl- (I,T)
U201	108-46-3	1,3-Benzenediol
U127	118-74-1	Benzene, hexachloro-
U056	110-82-7	Benzene, hexahydro- (I)
U220	108-88-3	Benzene, methyl-
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-
U055	98-82-8	Benzene, (1-methylethyl)- (I)
U169	98-95-3	Benzene, nitro-
U183	606-93-5	Benzene, pentachloro-
U185	82-68-8	Benzene, pentachloronitro-
U020	98-09-9	Benzenesulfonic acid chloride (C,R)
U207	95-84-3	Benzenesulfonyl chloride (C,R)
U081	50-29-3	Benzene, 1,2,4,5-tetrachloro-
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethyldiene)bis[4-chloro-
U023	98-07-7	Benzene, (trichloromethyl)-
U234	98-35-4	Benzene, 1,3,5-trinitro-
U021	82-87-5	Benzidine
U202	181-07-2	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts
U203	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-
U090	84-58-6	1,3-Benzodioxole, 5-propyl-
U084	188-55-8	Benzo[<i>a</i>]pyrene
U248	181-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less
U022	50-32-8	Benzo[<i>a</i>]pyrene
U187	108-51-4	p-Benzoquinone
U023	98-07-7	Benzenetrichloride (C,R,T)
U085	1484-53-5	2,2'-Bioxirane
U021	82-87-5	[1,1'-Biphenyl]-4,4'-diamine
U073	81-84-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-
U091	118-80-4	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-
U086	118-83-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-
U225	75-25-2	Bromoform
U030	101-55-3	4-Bromophenyl phenyl ether
U128	87-88-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	924-16-3	1-Butanamine, N-butyl-N-nitroso-
U031	71-36-3	1-Butanol (I)
U159	78-83-3	2-Butanone (I,T)
U180	1338-23-4	2-Butanone, peroxide (R,T)
U063	4170-30-3	2-Butenal
U074	784-41-0	2-Butene, 1,4-dichloro- (I,T)
U143	303-34-4	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutyl]methyl]-, 2,3,5,7-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7alpha]]-
U031	71-36-3	n-Butyl alcohol (I)
U136	75-60-6	Cacodylic acid
U032	13786-19-0	Calcium chromate
U238	51-79-8	Carbamic acid, ethyl ester
U178	615-53-2	Carbamic acid, methylnitroso-, ethyl ester
U097	78-44-7	Carbamic chloride, dimethyl-
U114	111-54-8	Carbamodithioic acid, 1,2-ethanedithioic-, salts & esters
U082	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester
U215	6533-73-9	Carbonic acid, dithallium(1+) salt
U033	353-50-4	Carbonic difluoride
U156	78-22-1	Carbonochloridic acid, methyl ester (I,T)
U033	353-50-4	Carbon oxyfluoride (R,T)
U211	56-23-5	Carbon tetrachloride
U034	75-87-6	Chloral
U035	305-03-3	Chlorambucil
U036	57-74-9	Chlordane, alpha & gamma isomers
U026	494-03-1	Chloromaphazin
U037	108-90-7	Chlorobenzene
U038	510-15-6	Chlorobenzilate
U039	50-50-7	p-Chloro-m-cresol

Haz- ardous waste No.	Chemical abstracts No.
U042	
U044	
U046	
U047	
U048	
U049	3
U032	13
U050	2
U051	
U052	10
U053	4
U055	
U246	5
U187	7
U056	1
U128	
U057	1
U130	
U058	
U240	1
U059	206
U060	
U061	
U062	20
U063	
U064	1
U066	
U069	
U070	
U071	5
U072	1
U073	
U074	7
U075	
U078	
U079	1
U025	1
U027	1
U024	1
U081	1
U082	
U084	5
U085	14
U108	1
U028	1
U086	16
U087	32
U088	
U089	
U090	
U091	1
U092	12
U093	
U094	
U095	1
U096	
U097	
U098	
U099	5
U101	10
U102	10
U103	
U105	1
U106	6
U107	1
U108	12
U109	12
U110	14
U111	6

Environmental Protection Agency

Ch. I (7-1-88 Edition)

Hazardous waste No.	Chemical abstracts No.	Substance
U042	110-75-8	2-Chloroethyl vinyl ether
U044	67-66-3	Chloroform
U046	107-30-2	Chloromethyl methyl ether
U047	91-58-7	beta-Chloronaphthalene
U048	95-57-8	o-Chlorophenol
U049	3165-93-3	4-Chloro-o-toluidine, hydrochloride
U032	13765-19-0	Chromic acid H ₂ CrO ₄ , calcium salt
U050	218-01-9	Chrysene
U051		Creosote
U052	1319-77-3	Cresol (Cresylic acid)
U053	4170-30-3	Crotonaldehyde
U055	98-82-8	Cumene (I)
U248	506-88-3	Cyanogen bromide (CN)Br
U197	106-51-4	2,5-Cyclohexadiene-1,4-dione
U056	110-82-7	Cyclohexane (I)
U129	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-
U057	108-84-1	Cyclohexanone (I)
U130	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	50-18-0	Cyclophosphamide
U240	194-75-7	2,4-D, salts & esters
U059	20830-81-3	Daunomycin
U060	72-54-8	DDD
U061	50-29-3	DDT
U062	2303-16-4	Diallate
U063	53-70-3	Dibenz[a,h]anthracene
U064	189-55-9	Dibenzo[a,j]pyrene
U066	96-12-8	1,2-Dibromo-3-chloropropane
U069	84-74-2	Dibutyl phthalate
U070	95-50-1	o-Dichlorobenzene
U071	541-73-1	m-Dichlorobenzene
U072	106-46-7	p-Dichlorobenzene
U073	91-94-1	3,3'-Dichlorobenzidine
U074	764-41-0	1,4-Dichloro-2-butene (I,T)
U075	75-71-8	Dichlorodifluoromethane
U076	75-35-4	1,1-Dichloroethylene
U079	156-60-5	1,2-Dichloroethylene
U025	111-44-4	Dichloroethyl ether
U027	108-80-1	Dichloroisopropyl ether
U024	111-91-1	Dichloromethoxy ethane
U081	120-83-2	2,4-Dichlorophenol
U082	87-65-0	2,6-Dichlorophenol
U084	542-75-6	1,3-Dichloropropene
U065	1464-53-5	1,2,3,4-Dioxobutane (I,T)
U108	123-91-1	1,4-Diethylenecyclohexane
U029	117-81-7	Diethylhexyl phthalate
U086	1615-80-1	N,N'-Diethylhydrazine
U087	3298-58-2	O,O-Diethyl S-methyl dithiophosphate
U088	84-68-2	Diethyl phthalate
U089	58-53-1	Diethylstilbestrol
U090	94-58-6	Dihydrostilbestrol
U091	119-80-4	3,3'-Dimethoxybenzidine
U092	124-40-3	Dimethylamine (I)
U093	60-11-7	p-Dimethylaminobenzene
U094	57-97-6	7,12-Dimethylbenz[a]anthracene
U095	119-93-7	3,3'-Dimethylbenzidine
U096	80-15-8	alpha, alpha-Dimethylbenzylhydroperoxide (R)
U097	79-44-7	Dimethylcarbamoyl chloride
U098	57-14-7	1,1-Dimethylhydrazine
U099	540-73-8	1,2-Dimethylhydrazine
U101	105-67-9	2,4-Dimethylphenol
U102	131-11-3	Dimethyl phthalate
U103	77-78-1	Dimethyl sulfate
U105	121-14-2	2,4-Dinitrotoluene
U106	606-20-2	2,6-Dinitrotoluene
U107	117-84-0	Di-n-octyl phthalate
U108	123-91-1	1,4-Dioxane
U109	122-66-7	1,2-Diphenylhydrazine
U110	142-84-7	Dipropylamine (I)
U111	621-84-7	Di-n-propylntrosamine

Haz- ardous waste No.	Chemical abstracts No.	Substance
U041	106-89-8	Epichlorohydrin
U001	75-07-2	Ethanal (I)
U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-
U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-
U067	106-83-4	Ethane, 1,2-dibromo-
U078	75-34-3	Ethane, 1,1-dichloro-
U077	107-06-2	Ethane, 1,2-dichloro-
U131	67-72-1	Ethane, hexachloro-
U024	111-91-1	Ethane, 1,1'-(methylenedioxy)bis[2-chloro-
U117	60-29-7	Ethane, 1,1'-oxybis-(I)
U025	111-44-4	Ethane, 1,1'-oxybis[2-chloro-
U184	76-01-7	Ethane, pentachloro-
U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-
U209	79-34-5	Ethane, 1,1,2,2-tetrachloro-
U218	62-55-5	Ethanethioamide
U226	71-55-6	Ethane, 1,1,1-trichloro-
U227	79-00-6	Ethane, 1,1,2-trichloro-
U359	110-80-5	Ethanol, 2-ethoxy-
U173	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
U004	98-86-2	Ethanone, 1-phenyl-
U043	75-01-4	Ethene, chloro-
U042	110-75-8	Ethene, (2-chloroethoxy)-
U078	75-35-4	Ethene, 1,1-dichloro-
U079	156-60-6	Ethene, 1,2-dichloro-, (E)-
U210	127-18-4	Ethene, tetrachloro-
U226	79-01-6	Ethene, trichloro-
U112	141-78-6	Ethyl acetate (I)
U113	140-88-2	Ethyl acrylate (I)
U238	51-79-6	Ethyl carbamate (urethane)
U117	60-29-7	Ethyl ether (I)
U114	111-54-6	Ethylenebis(dithiocarbamic acid, salts & esters
U067	106-83-4	Ethylene dibromide
U077	107-06-2	Ethylene dichloride
U359	110-80-5	Ethylene glycol monoethyl ether
U115	75-21-8	Ethylene oxide (I,T)
U116	96-45-7	Ethylenethiourea
U076	75-34-3	Ethyldene dichloride
U118	97-63-2	Ethyl methacrylate
U119	62-50-0	Ethyl methanesulfonate
U120	206-44-0	Fluoranthene
U122	50-00-0	Formaldehyde
U123	64-18-6	Formic acid (C,T)
U124	110-00-8	Furan (I)
U125	98-01-1	2-Furancarboxaldehyde (I)
U147	106-31-6	2,5-Furandione
U213	109-99-8	Furan, tetrahydro-(I)
U125	98-01-1	Furfural (I)
U124	110-00-8	Furfuran (I)
U206	18883-66-4	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoimino)-, D-
U206	18883-66-4	D-Glucose, 2-deoxy-2-[(methylnitrosoamino)- carbonyl]amino]-
U126	765-34-4	Glycidylaldehyde
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nitroso-
U127	118-74-1	Hexachlorobenzene
U128	87-68-3	Hexachlorobutadiene
U130	77-47-4	Hexachlorocyclopentadiene
U131	67-72-1	Hexachloroethane
U132	70-30-4	Hexachlorophene
U243	1898-71-7	Hexachloropropene
U133	302-01-2	Hydrazine (R,T)
U086	1815-80-1	Hydrazine, 1,2-diethyl-
U088	57-14-7	Hydrazine, 1,1-dimethyl-
U089	540-73-8	Hydrazine, 1,2-dimethyl-
U109	122-68-7	Hydrazine, 1,2-diphenyl-
U134	7664-39-3	Hydrofluoric acid (C,T)
U134	7664-39-3	Hydrogen fluoride (C,T)
U135	7783-06-4	Hydrogen sulfide
U135	7783-06-4	Hydrogen sulfide H ₂ S
U086	80-15-6	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U116	96-45-7	2-Imidazolidinethione

Haz- ardous waste No.	Chemical abstracts No.
U137	193-39
U139	9004-66
U190	85-44
U140	78-83
U141	120-58
U142	143-50
U143	303-34
U144	301-04
U146	1335-32
U145	7446-27
U146	1335-32
U129	58-89
U183	70-25
U147	108-31
U148	123-33
U149	109-77
U150	148-82
U151	7439-97
U152	126-86
U092	124-40
U029	74-83
U045	74-87
U046	107-30
U068	74-95
U080	75-09
U075	75-71
U138	74-88
U119	62-50
U211	56-23
U153	74-83
U225	75-25
U044	67-86
U121	75-89
U036	57-74
U154	67-56
U155	91-80
U142	143-50
U247	72-43
U154	67-56
U029	74-83
U186	504-60
U045	74-87
U156	79-22
U226	71-55
U157	56-49
U158	101-14
U068	74-95
U080	75-09
U159	78-93
U160	1338-23
U138	74-88
U161	108-10
U162	80-62
U161	108-10
U164	56-04
U010	50-07
U059	20830-81
U167	134-32
U168	91-59
U026	494-03
U165	91-20
U047	91-58
U166	130-15
U236	72-57
U168	130-15
U167	134-32
U168	91-59
U217	10102-45

Environmental Protection Agency

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Hazardous waste No.	Chemical abstracts No.	Substance
U137	193-39-5	Indeno[1,2,3-cd]pyrene
U139	9004-66-4	Iron dextran
U190	85-44-8	1,3-Isobenzotetrandione
U140	78-83-1	Isobutyl alcohol (I,T)
U141	120-58-1	Isosafrole
U142	143-50-0	Kepone
U143	303-34-4	Lasiocarpine
U144	301-04-2	Lead acetate
U146	1335-32-8	Lead, bis(acetato-O)tetrahydroxytri-
U145	7446-27-7	Lead phosphate
U146	1335-32-8	Lead subacetate
U129	58-89-9	Lindane
U163	70-25-7	MNNG
U147	108-31-6	Maleic anhydride
U148	123-33-1	Maleic hydrazide
U149	109-77-3	Malononitrile
U150	148-82-3	Melphalan
U151	7439-97-6	Mercury
U152	128-96-7	Methacrylonitrile (I, T)
U092	124-40-3	Methanamine, N-methyl- (I)
U029	74-83-9	Methane, bromo-
U045	74-87-3	Methane, chloro- (I, T)
U048	107-30-2	Methane, chloromethoxy-
U068	74-85-3	Methane, dibromo-
U080	75-09-2	Methane, dichloro-
U075	75-71-8	Methane, dichlorodifluoro-
U138	74-88-4	Methane, iodo-
U119	62-50-0	Methanesulfonic acid, ethyl ester
U211	58-23-5	Methane, tetrachloro-
U153	74-83-1	Methanethiol (I, T)
U225	75-25-2	Methane, tribromo-
U044	67-68-3	Methane, trichloro-
U121	75-69-4	Methane, trichlorofluoro-
U036	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
U154	67-56-1	Methanol (I)
U155	91-80-5	Methapyrene
U142	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
U247	72-43-5	Methoxychlor
U154	67-56-1	Methyl alcohol (I)
U029	74-83-9	Methyl bromide
U188	504-60-9	1-Methylbutadiene (I)
U045	74-87-3	Methyl chloride (I,T)
U156	79-22-1	Methyl chlorocarbonate (I,T)
U226	71-55-8	Methyl chloroform
U157	58-49-5	3-Methylcholanthrene
U158	101-14-4	4,4'-Methylenebis(2-chloroaniline)
U068	74-85-3	Methylene bromide
U080	75-09-2	Methylene chloride
U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)
U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)
U138	74-88-4	Methyl iodide
U161	108-10-1	Methyl isobutyl ketone (I)
U162	80-62-6	Methyl methacrylate (I,T)
U161	108-10-1	4-Methyl-2-pentanone (I)
U164	55-04-2	Methylthiouracil
U010	50-07-7	Nitromycin C
U059	20830-81-3	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-tyxo-hexopyranosyloxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (6S-cis)-
U167	134-32-7	1-Naphthalenamine
U168	91-59-8	2-Naphthalenamine
U028	494-03-1	Naphthalenamine, N,N'-bis(2-chloroethyl)-
U165	91-20-3	Naphthalene
U047	91-58-7	Naphthalene, 2-chloro-
U166	130-15-4	1,4-Naphthalenedione
U236	72-57-1	2,7-Naphthalenedisulfonic acid, 3,3'-[3,3'-dimethyl(1,1'-biphenyl)-4,4'-diyl]bis(azo)bis[5-amino-4-hydroxy]-, tetrasodium salt
U166	130-15-4	1,4-Naphthoquinone
U167	134-32-7	alpha-Naphthylamine
U168	91-59-8	beta-Naphthylamine
U217	10102-45-1	Nitric acid, thallium(1+) salt

Chemical abstracts No.	Substance
U169 98-85-3	Nitrobenzene (L,T)
U170 100-02-7	p-Nitrophenol
U171 79-48-8	2-Nitropropane (L,T)
U172 824-16-3	N-Nitrosodi-n-butylamine
U173 1116-54-7	N-Nitrosodiethanolamine
U174 55-18-5	N-Nitrosodimethylamine
U176 759-73-9	N-Nitroso-N-ethylurea
U177 684-83-5	N-Nitroso-N-methylurea
U178 615-53-2	N-Nitroso-N-methylurethane
U179 100-75-4	N-Nitrosopiperidine
U180 930-55-2	N-Nitrosopyrrolidine
U181 99-55-8	5-Nitro-o-toluidine
U183 1120-71-4	1,2-Oxathiolane, 2,2-dioxide
U058 50-16-0	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide
U115 75-21-8	Oxirane (L,T)
U126 765-34-4	Oxiranecarboxaldehyde
U041 108-89-8	Oxirane, (chloromethyl)-
U182 123-63-7	Paraldehyde
U183 608-83-5	Pentachlorobenzene
U184 76-01-7	Pentachloroethane
U185 82-68-8	Pentachloronitrobenzene (PCNB)
See F027 87-86-5	Pentachlorophenol
U161 108-10-1	Pentanol, 4-methyl-
U186 504-60-9	1,3-Pentadiene (I)
U187 62-44-2	Phenacetin
U188 108-95-2	Phenol
U048 95-57-8	Phenol, 2-chloro-
U039 59-50-7	Phenol, 4-chloro-3-methyl-
U081 120-83-2	Phenol, 2,4-dichloro-
U082 87-86-0	Phenol, 2,6-dichloro-
U089 56-53-1	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-
U101 105-67-9	Phenol, 2,4-dimethyl-
U052 1319-77-3	Phenol, methyl-
U132 70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-
U170 100-02-7	Phenol, 4-nitro-
See F027 87-86-5	Phenol, pentachloro-
See F027 58-90-2	Phenol, 2,3,4,6-tetrachloro-
See F027 95-85-4	Phenol, 2,4,5-trichloro-
See F027 68-08-2	Phenol, 2,4,6-trichloro-
U150 148-82-3	L-Phenylalanine, 4-[(bis(2-chloroethyl)amino)-
U146 7446-27-7	Phosphoric acid, lead(2+) salt (2:3)
U087 3288-68-2	Phosphorodithioic acid, O,O-diethyl S-methyl ester
U189 1314-80-3	Phosphorus sulfide (R)
U190 85-44-8	Phthalic anhydride
U191 108-08-6	2-Picoline
U179 100-75-4	Piperidine, 1-nitroso-
U182 23950-68-5	Pronamide
U184 107-10-6	1-Propenamine (L,T)
U111 621-84-7	1-Propenamine, N-nitroso-N-propyl-
U110 142-84-7	1-Propenamine, N-propyl- (I)
U088 96-12-6	Propene, 1,2-dibromo-3-chloro-
U083 78-87-5	Propene, 1,2-dichloro-
U148 109-77-3	Propenedinitrile
U171 78-48-8	Propene, 2-nitro- (L,T)
U027 108-60-1	Propene, 2,2'-oxybis(2-chloro-
U193 1120-71-4	1,3-Propene sulfone
See F027 89-72-1	Propenoic acid, 2-(2,4,5-trichlorophenoxy)-
U235 129-72-7	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U140 78-83-1	1-Propanol, 2-methyl- (L,T)
U002 67-84-1	2-Propanone (I)
U007 78-06-1	2-Propanamide
U084 542-75-6	1-Propene, 1,3-dichloro-
U243 1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-

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Has- ardous waste No.	C abs
U008	
U152	
U008	
U113	
U118	
U182	
U194	
U083	
U148	
U186	
U191	
U237	
U184	
U180	
U200	
U201	
U202	
U203	
U204	7
U204	7
U205	7
U205	7
U015	
See F027	
U306	18
U183	
U189	1
See F027	
U207	
U298	
U208	
U210	
See F027	
U213	
U214	
U215	6
U216	7
U216	7
U217	19
U218	
U153	
U244	
U219	
U244	
U220	
U221	25
U223	26
U326	
U353	
U222	
U811	
U227	
U228	
U121	
See F027	
See F027	
U234	
U182	
U235	
U236	
U237	
U178	
U043	

Substance

Hazardous waste No.	Chemical abstracts No.	Substance
U009	107-13-1	2-Propenenitrile
U152	129-98-7	2-Propenenitrile, 2-methyl- (I,T)
U008	79-10-7	2-Propenoic acid (I)
U113	140-88-5	2-Propenoic acid, ethyl ester (I)
U118	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester
U162	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U194	107-10-8	n-Propylamine (I,T)
U063	78-67-5	Propylene dichloride
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-
U196	110-66-1	Pyridine
U191	109-06-8	Pyridine, 2-methyl-
U237	66-75-1	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U164	59-04-2	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thio-
U189	930-55-2	Pyridine, 1-nitroso-
U209	50-55-5	Reserpine
U201	108-46-3	Resorcinol
U202	81-07-2	Saccharin, & salts
U203	94-59-7	Safrole
U204	7783-00-8	Selenious acid
U204	7783-00-8	Selenium dioxide
U205	7489-58-4	Selenium sulfide
U205	7489-58-4	Selenium sulfide SeS ₂ (R,T)
U015	115-92-6	L-Serine, diazoacetate (ester)
See	93-72-1	Silver (2,4,5-TP)
F027		
U206	18983-66-4	Streptozotocin
U183	77-78-1	Sulfuric acid, dimethyl ester
U189	1314-60-3	Sulfur phosphide (R)
See	93-76-5	2,4,5-T
F027		
U207	95-94-3	1,2,4,5-Tetrachlorobenzene
U299	630-20-8	1,1,1,2-Tetrachloroethane
U209	78-34-5	1,1,2,2-Tetrachloroethane
U210	127-18-4	Tetrachloroethylene
See	58-69-2	2,3,4,6-Tetrachlorophenol
F027		
U213	109-99-9	Tetrahydrofuran (I)
U214	583-68-8	Thallium(I) acetate
U215	6533-73-9	Thallium(I) carbonate
U216	7791-12-0	Thallium(I) chloride
U216	7791-12-0	Thallium chloride, TlCl
U217	10102-45-1	Thallium(I) nitrate
U218	62-55-5	Thioacetamide
U153	74-83-1	Thiomethanol (I,T)
U244	137-26-8	Thioisocyanic acid, diisocyanic acid, tetramethyl-
U219	62-58-6	Thiourea
U244	137-26-8	Thiourea
U220	108-68-3	Toluene
U221	25376-45-8	Toluenediamine
U223	26471-62-5	Toluene diisocyanate (R,T)
U329	95-53-4	o-Toluidine
U353	106-49-0	p-Toluidine
U222	638-21-5	o-Toluidine hydrochloride
U011	61-82-5	1H-1,2,4-Triazol-3-amine
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Trichloroethylene
U121	75-69-4	Trichloromono-fluoromethane
See	95-95-4	2,4,5-Trichlorophenol
F027		
See	58-06-2	2,4,6-Trichlorophenol
F027		
U234	98-35-4	1,3,5-Trinitrobenzene (R,T)
U182	123-63-7	1,3,5-Triazane, 2,4,6-trimethyl-
U235	129-72-7	Tri(2,3-dibromopropyl) phosphate
U236	72-57-1	Trypan blue
U237	68-75-1	Uracil mustard
U178	758-73-9	Urea, N-ethyl-N-nitroso-
U177	684-63-5	Urea, N-methyl-N-nitroso-
U043	75-01-4	Vinyl chloride

Hazardous waste No.	Chemical abstracts No.	Substance
U248	¹ 81-81-2	Warfarin, & salts, when present at concentrations of 0.3% or less
U239	1330-20-7	Xylene (I)
U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-16-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-
U249	1314-84-7	Zinc phosphide Zn_3P_2 , when present at concentrations of 10% or less

¹ CAS Number given for parent compound only.

(Approved by the Office of Management and Budget under control number 2050-0047)
[45 FR 78529, 78541, Nov. 25, 1980, as amended at 46 FR 27477, May 20, 1981; 49 FR 19923, May 10, 1984; 50 FR 2000, Jan. 14, 1985; 50 FR 28744, July 15, 1985; 50 FR 42942, Oct. 23, 1985; 51 FR 6541, Feb. 25, 1986; 51 FR 10175, Mar. 24, 1986; 51 FR 28298, Aug. 6, 1986; 52 FR 21306, June 5, 1987; 52 FR 26012, July 10, 1987; 53 FR 13383, 13384, Apr. 22, 1988]

APPENDIX I—REPRESENTATIVE SAMPLING METHODS

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed below, for sampling waste with properties similar to the indicated materials, will be considered by the Agency to be representative of the waste.

Extremely viscous liquid—ASTM Standard D140-70 Crushed or powdered material—ASTM Standard D346-75 Soil or rock-like material—ASTM Standard D420-69 Soil-like material—ASTM Standard D1452-65 Fly Ash-like material—ASTM Standard D2234-76 [ASTM Standards are available from ASTM, 1916 Race St., Philadelphia, PA 19103]

Containerized liquid wastes—"COLIWASA" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"^a U.S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460. [Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 26 W. St. Clair St., Cincinnati, Ohio 45268]

Liquid waste in pits, ponds, lagoons, and similar reservoirs—"Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods,"^a

This manual also contains additional information on application of these protocols.

^a These methods are also described in "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA 600/3-80-018, January 1980.

APPENDIX II—EP TOXICITY TEST PROCEDURES

A. Extraction Procedure (EP)

1. A representative sample of the waste to be tested (minimum size 100 grams) shall be obtained using the methods specified in Appendix I or any other method capable of yielding a representative sample within the meaning of Part 260. [For detailed guidance on conducting the various aspects of the EP see "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see § 260.11).]

2. The sample shall be separated into its component liquid and solid phases using the method described in "Separation Procedure" below. If the solid residue^a obtained using this method totals less than 0.5% of the original weight of the waste, the residue can be discarded and the operator shall treat the liquid phase as the extract and proceed immediately to Step 8.

$$\frac{(\text{weight of pad} + \text{solid}) - (\text{tare weight of pad})}{\text{initial weight of sample}} \times 100$$

3. The solid material obtained from the Separation Procedure shall be evaluated for its particle size. If the solid material has a surface area per gram of material equal to, or greater than, 3.1 cm^2 or passes through a 9.5 mm (0.375 inch) standard sieve, the operator shall proceed to Step 4. If the surface area is smaller or the particle size larger than specified above, the solid material shall be prepared for extraction by crush-

^a The percent solids is determined by drying the filter pad at 80°C until it reaches constant weight and then calculating the percent solids using the following equation:
Percent solids =